AN ABSTRACT OF THE DISSERTATION OF

Naomi A. Mandsager for the degree of Doctor of Philosophy in Counseling presented on June 7, 2002.

Title: The Predictive Relationship of Religiosity to Readiness to Change in Addiction Recovery.

Abstract approved: Redacted for Privacy

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The prevalence of addiction in society has called researchers, educators, policy makers, and clinicians to examine and research causes and treatment approaches to address the manifold problems addictions present individuals and society alike. There are many theoretical approaches to understanding addiction and the behavior change processes that lead from addiction to recovery. Religiosity and spirituality have been identified as important factors in addiction, though the exact nature of the relationship is yet to be determined. This dissertation explores the relationship between religiosity and the known treatment outcome mediator. The purpose of this dissertation is to inform theory, training, and practice in the area of addictions counseling.

This exploratory study investigated the relationship of religiosity to readiness to change in addictive behaviors. The database from Project MATCH was used which included participant scores from the aftercare arm of the clinical trial. A total of 772 scores were used from responses to the RBB and URICA. Stepwise multiple regression revealed that there were no significant differences detected across variables regarding the relationship of religiosity to readiness to change.

The Predictive Relationship of Religiosity to Readiness to Change in Addiction Recovery

by
Naomi A. Mandsager

A DISSERTATION

Submitted to

Oregon State University

in partial fulfillment of
the requirements for the
degree of

Doctor of Philosophy

Presented June 7, 2002
Commencement June, 2003

Doctor of Philosophy dissertation of Naomi A. Mandsager presented on June 7, 2002.

APPROVED:

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I understand that my dissertation will become part of the permanent collection of Oregon State University libraries. My signature below authorizes release of my dissertation to any reader upon request.

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Naomi A. Mandsager, Author

ACKNOWLEDGEMENTS

The author expresses sincere gratitude to all the members of the doctoral committee: Dr. Cass Dykeman, for his mentoring, guidance, and support, Dr. Michael Ingram, for his inspiration and thoughtful input, Dr. Gene Eakin, for his sense of humor and challenging questions, Dr. Dale Pehrsson, for her time and encouraging insight, Dr. Jim Firth, for his generosity and dedication to the profession, Dr. Stephen Giovannoni, for his good natured and uplifting presence, and Dr. Alan Brazier, for his openness and magnanimous contribution as a stand-in committee member.

This study greatly benefited from the research conducted by the Project MATCH Research Group. The field of addiction counseling has been advanced and will continue to be informed by the important work done by this group.

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DEDICATION

Dedicated to my family, dear friends, and mentors, whose support continues to touch my life in profound and meaningful ways.

The Predictive Relationship of Religiosity to Readiness to Change in Addiction Recovery

CHAPTER 1: INTRODUCTION

The prevalence of addiction in society has called researchers, educators, policy makers, and clinicians to examine and research causes and treatment approaches to address the manifold problems addictions present individuals and society alike. There are many theoretical approaches to understanding addiction and the behavior change processes that lead from addiction to recovery. Religiosity and spirituality have been identified as important factors in addiction, though the exact nature of the relationship is yet to be determined. This dissertation explores the relationship between religiosity and a known treatment outcome mediator. The purpose of this dissertation is to inform theory, training, and practice in the area of addictions counseling.

RATIONALE

The need for improvement in addictions treatment is evident given the prevalence of addiction in our society. The total cost of alcohol misuse in the United States is estimated to be approximately $98.6 billion in 1990, including $10.5 billion on funding treatment (Drummond, 1999). From this perspective, the need for research that examines alcohol treatment outcome and informs treatment development is well founded. Project MATCH was developed to meet these needs.

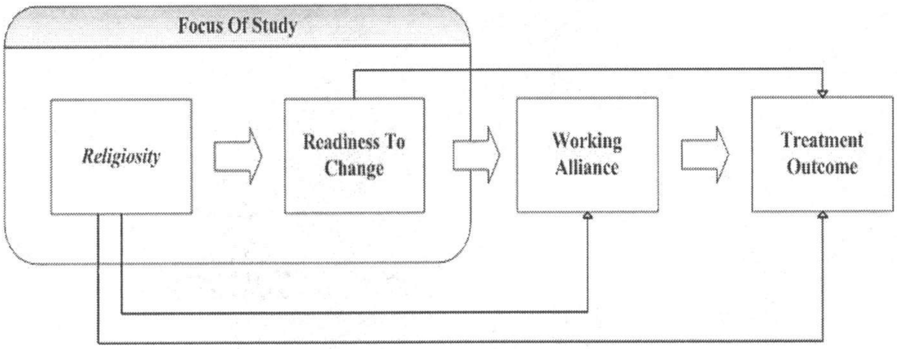
Specifically, Project MATCH was designed to test the general assumption that alcohol treatment matching would improve treatment outcome. Though the outcome of Project MATCH did not show matching effects, the Project MATCH Research Group (1998) noted that the project was useful beyond matching effect. Relevant here, researchers from Project MATCH have explored variables with regard to religious beliefs and practices and treatment outcome.

Regarding Project MATCH treatments, it was anticipated that clients with higher levels of religiosity would benefit more from the Twelve Step Facilitation (TSF) treatment than would clients in lower religiosity. No relationship beyond a weak prognostic effect of religiosity on treatment outcome was predicted for clients in the Cognitive Behavioral Coping Skills Therapy or Motivational Enhancement Therapy conditions. Tests of matching hypotheses revealed no support for the predicted match among either the outpatient or aftercare samples. It was found that religiosity among TSF clients was linearly related to the degree of therapeutic task compatibility. Other analyses revealed that aftercare clients reported greater religiosity at pretreatment than did outpatient clients and that pretreatment religiosity predicted positive posttreatment drinking outcomes. Though religiosity did not present as a viable matching dimension with the treatments evaluated by Project MATCH, religiosity does appear to have a role in the predictions of the therapeutic relationship among aftercare clients and of posttreatment drinking behavior (Connors, Tonigan, & Miller, 2001).

Various Project MATCH analyses revealed a relationship between client religiosity and therapeutic alliance, and also a relationship between readiness to change and therapeutic alliance to treatment outcome. However, the antecedent variables to readiness to change have yet to be examined as proposed in Figure 1. As religiosity has been identified as potentially significant to therapeutic relationship, this study aims to determine the place of religiosity in this causal chain.

Figure 1 contains the hypothetical causal chain guiding this study. The variables in regular print represent known relationships. The "Focus of Study" box located within Figure 1 denotes the scope of this dissertation study. The variable religiosity is italicized to represent its relationship to readiness to change is unknown. See Figure 1.

Figure 1: Focus of Study



ADDICTION RECOVERY

Few would argue that addiction recovery is important to improve the quality of life for individuals and society as a whole. Improved quality of life can be conceptualized by examining those factors that contribute to increased health, wellness, and social functioning. Specifically, wellness cannot occur outside of recovery for the addicted individual. With recovery, the individual and society are afforded increased opportunity for healthy living.

Most assuredly, one of the many potential goals of addiction recovery is motivation to change addictive behavior and engage in a healthy life style. A person's readiness – motivation – to participate in addiction recovery is imperative to ensure effective and on-going recovery, and ultimately a full and satisfying lifestyle.

For these reasons, addiction recovery is the key focus of addictions treatment. Due to changing trends in society, public policy, and the economy, addictions treatment requires efficient and effective approaches. Effective approaches require program evaluation, research, and training that integrates an understanding of the client's motivation – readiness to change – for recovery.

Treatment programs should incorporate an understanding and interventions that further contribute to the motivation of clients as motivation helps clients attain recovery goals and enhances the benefits of treatment. Achieving the goals of recovery is contingent upon clients being successful in treatment. Client readiness to change is essential for engagement in treatment and recovery behaviors. Therefore, it is important that treatment approaches integrate readiness to change to promote addiction recovery. This outcome is the ultimate objective of treatment.

OVERVIEW

This dissertation explores the relationship between client religiosity and readiness to change in addiction recovery. First, in this chapter, a description of the purpose of the current study will outline the overall objectives of this investigation. The discussion of research goals will outline the advantages of the present study followed by an account of the potential ramifications of this research project. The reasoning for the selection of the criterion variable will be presented according to the importance of the research question. Next, an explanation of the research question and the hypothesis will be detailed, including a rationale for the background variables included in this investigation. Finally, a glossary of technical terms relevant to this study is provided.

Research Goals

As an exploratory study, this dissertation seeks to provide new knowledge about the nature of the relationship between client religiosity and readiness to change in addiction recovery. Improved client readiness to change (motivation) is a step toward positive outcomes in addictions treatment, and ultimately, addictions recovery. Therefore, it is important to determine the relationship between religiosity and readiness to change as this relationship may serve to further inform the aforementioned causal chain. As will be detailed in Chapter 2, present research points to a strong link between readiness to change (motivation) and addiction recovery. Though, notably, is the addiction research on the relationship of religiosity and readiness to change is lacking.

Previous Research Problems

Project MATCH was designed and implemented in response to previous research problems, particularly in the area of statistical power, and to provide a rigorous test of the most promising matching hypotheses (PMRG, 1997). Weak measures, limited sample size, infidelity of treatment, and client homogeneity have confounded past outcome research. There are many reasons for the research field to value Project MATCH. This study has taken great strides in methodological research quality (Drummond, 1999).

Power

One common problem in addiction outcome research has been statistical power. This problem has occurred because of the cost and logistics involved in putting together clinical trials with a sufficient number of subjects. Large sample sizes are important as the probability of a correct rejection of the null hypothesis increases with sample size. Project MATCH addressed this research problem by recruiting a large enough samples size to provided sufficient statistical power to assess treatment matching effects on a wide range of variables (Drummond, 1999).

Measures

In past addictions outcome research, the measures implemented have not been rigorously tested for reliability and validity. In addition, collateral information sources have been neglected as viable measures for informing validity of the studies. Project MATCH addressed these problems by using standardized, validated research instruments to measure outcome, by minimizing missing data by follow-up and by evaluating the validity of self-reports via collateral reports and blood specimens for analysis heavy drinking. These precautionary interventions reduced the potential for bias and increase the internal validity of the study (Drummond, 1999).

Fidelity of Treatment

Another problem with past outcome research is fidelity of the intervention (i.e., treatment) administered. Because of various levels of training and experience, it is complicated and arduous to control for therapist "drift" from the standardized prescribed treatment. Treatment potency, dosage, and consistency fell subject to inconsistency. To account for these problems in Project MATCH, facilitate consistency of treatment quality and delivery across sites, and prevent therapist "drift" during the main phase of the study, all sessions were videotaped and sent to an independent coordinating center, where a proportion of each subjects sessions were reviewed by the supervisors. Telephone supervision was provided on a monthly basis by the coordinating center supervisors and supplemented with weekly onsite group supervision at each clinical research unit. All sessions viewed were rated for therapist skillfulness, adherence to manual guidelines, and delivery of manual-specified active ingredients unique to each approach. These ratings were sent monthly to the project coordinators at each site to alert local supervisors to therapist drift. Therapists whose performance deviated in quality or adherence to the manual were "redlined" by the Coordinating Center, and the frequency of sessions monitored and supervision increased until the therapist's performance returned to acceptable levels (U. S. Department of Health and Human Services, 1995).

Client Heterogeneity

Previous treatment outcome research was typically limited to one limited geographical location, and therefore homogeneous. A lack of heterogeneity thus limited generalizability of results. Project MATCH sought to address this problem by recruiting over a 2-year period using a variety of strategies aimed at maximizing sample heterogeneity (Zweben et al., 1994 as cited in PMRG, 1997).

Mediator/Moderator

The role of mediator and moderator variables has typically been overlooked in addictions outcome research. The research has been limited to looking at single patient variable and treatment predictive relationships, particularly in treatment matching studies. The complexity of the matching process is discussed by PMRG (1997), which suggests that patient-treatment interactions are likely to be of a higher order than the simple, single patient variable X treatment modality interactions examined in Project MATCH and most other studies (Finney, 1999). Therefore, looking beyond if treatment works – which outcome research has aimed to do, research needs to address how and why and the strength of association between independent and outcome variables. Examining why treatment works can be done by addressing mediator and moderator variables, respectively, via causal chain analysis (U.S Department of Health and Human Services, 2001).

Potential Ramifications

This study may have significant ramifications for research and clinical practice in addictions treatment and recovery. Two variables were addressed that had note yet been examined closely in research (religiosity to readiness to change). Additionally, the research design is sufficiently manageable so as to control for potential mediating and moderating variables. The outcome of this study will serve to inform future research with regard to the causal chain previously mentioned.

Specifically, if religiosity is predictive of readiness to change, then a causal chain analyses including readiness to change as a mediator of religiosity would be supported. The outcome of subsequent research would inform clinical practice and enhance treatment provision contingent on training models that incorporate religiosity and readiness to change in treatment.

ADDICTION TREATMENT, RELIGIOSITY, AND READINESS TO CHANGE

Why investigate the impact of religiosity on readiness to change rather than other variables? There are five primary rationales for this decision: (a) need for further research as to why treatment works, (b) religiosity has historical place in addictions treatment, (c) inform the development and management of treatment programs to reduce the financial cost of delivery while increasing the likelihood of positive outcome, (d) relationship of readiness to change to addiction recovery behavior is supported by research, (e) improve working alliance, and (f) inform training and clinical practice

Addiction Recovery and Addiction Treatment

Research has determined that addiction treatment works (Project MATCH Research Group, 1997). Therefore, we can conclude that treatment is important to addiction recovery. However, there still exists a considerable problem with addiction in this society, including a problem of attrition within treatment programs and relapse after treatment completion. Therefore, it is important to ascertain factors that contribute to the success of treatment in order to further enhance treatment approaches, if not develop new treatment approaches specific to these influential variables.

Religiosity and Historical Context in Addictions Recovery

Religiosity and spirituality have been elements of addiction recovery since 1908 when Frank Buchman founded the Oxford Group in England. This movement was initiated based on his personal experience of a spiritual transformation and spread over the next 20 year, worldwide. In 1935, Bill W. founded Alcoholics Anonymous (AA) after he had been influenced by others connected to the Oxford Group. Early members of AA wrote about their struggles in recovery, publishing the first edition of the book Alcoholics Anonymous in 1939. Included in this first edition of the "Big Book" were the Twelve Steps and the Twelve Traditions of the organization. AA has grown into a fellowship of over 15 million individuals and over 500,000 groups in 114 countries (Stevens & Smith, 2001).

Other approaches have emerged that recognize the effectiveness of AA principles, such as the understanding of "powerlessness," while focusing on dynamics of addictions beyond the disease model. McAuliffe and McAuliffe (1975) conceptualize chemical dependency as a "pathological relationship." This term is adapted from the idea of an unhealthy dependent relationship between or among people. Specifically, people who have an abnormal need for acceptance and approval become sick in futile efforts to control and manipulate others in order to gain acceptance and approval, hence, pathologically dependent. McAuliffe and McAuliffe (1975) identify similar dynamics in chemical dependency. More to the point, the person who is addicted makes compulsive efforts to control and manipulate in order to meet the needs of the dependency (i.e., the reward or desired effects). Self-image, relative to the pathological relationship with a mood altering substance, is addressed in this model. Particular attention is given to the individual's spirituality and understanding of power. Within the context of this model, "power" is identified as a critical component of recovery that includes an understanding of a "Higher Power," or divine power. As well, this model identifies spiritual powers as one of six life powers that are directly impaired by addiction. Moreover, McAuliffe et al. (1985) identify healing steps aimed at healing spiritual life power. This relationship model integrates concepts and traditions of the Twelve Steps including the use of specific prayers (i.e., The Lord's Prayer, The Serenity Prayer, and The Prayer of Saint Francis). This approach is among other which support the role of religiosity in addiction treatment.

Transtheoretical Model

The lack of an overall guiding theory, the search for underlying principles, the growing recognition that there is no single therapy that is more correct than any other, and the emergence of new therapeutic approaches led to the development of a transtheoretical model of change (Prochaska, Norcross, & DiClemente, 1994).

This model proposes that all therapeutic approaches can be summarized by a few essential principles termed "processes of change." These processes of change are as follows: consciousness raising, social liberation, emotional arousal, self-reevaluation, commitment, countering, environment control, reward, helping relationship (i.e., therapeutic working alliance, social support, self-help groups).

In order to relate these various change processes from diverse and sometimes theoretically opposed systems of psychotherapy, the transtheoretical model incorporates stages of change. More to the point, stages of change indicate specific times when the change processes are implemented. Successful changers use the tools of change processes only at certain times, choosing a different process whenever the situation called for a new approach. These stages of change reflect a "readiness" or motivational level to engage in given processes and new behaviors. There are six well-defined stages of change within the trantheoretical model: precontemplation, contemplation, preparation, action, maintenance, termination (Prochaska et al., 1994).

Readiness to Change (Stage of Change)

Readiness to Change is defined according to the University of Rhode Island Change Assessment (URICA). This measure was used in Project MATCH to assesses stages of change, which are integral to the transtheoretical model. A 28-item version of the URICA was used with clients in alcoholism treatment to evaluate alcohol specific attitudes related to precontemplation, contemplation, action, and maintenance stages as on a continuum of readiness to change drinking behavior (DiClemente et al., 2001). Research supports the influence of readiness to change on addiction recovery particularly concerning alcohol abuse and dependence.

Working Alliance (Process of Change)

This process is a deep structure of counseling that enables and facilitates specific counseling techniques through the therapeutic relationship. Components of this relationship include goals, tasks, and bond set between client and therapist (Horvath & Greenberg, 1989). Despite limitations in research of treatment outcome, the literature indicates that working alliance is one variable that positively influences treatment completion/outcome.

Training and Practice

Though it has been established that addictions treatment works, it has not been determined exactly what variables contribute to this effectiveness. Determination of these factors may lend some insight into attrition and inform clinical practice with regard to improving treatment approaches and enhancing outcomes. Building on the transtheoretical variables noted above sets a firm foundation for training as it relates to outcome and applies to all schools of psychotherapy.

RESEARCH QUESTION

Religiosity and readiness to change are the variables of interest and inform the question and hypotheses that inform this investigation. This study examines the following research question:

> Beyond the background variables of gender, minority status, and socioeconomic status, what is the predictive value of client religiosity to readiness to change?

HYPOTHESIS

For the above research question, a hypothesis can be put forth to help guide the study design and subsequent data analysis. The following hypothesis was based on theory, previous findings, and the author's clinical observations.

> H_1: Independent of all background variables, client religiosity will predict stage of readiness to change.
>
> H_0: Independent of al background variables, client religiosity will be unrelated to readiness to change.

GLOSSARY

The following glossary is designed to assist the reader by defining technical terms used throughout this dissertation. The glossary can serve as a reference for the definition of constructs and variables investigated in this study.

Project MATCH

In 1989, the National Institute on Alcohol Abuse and Alcoholism (NIAAA) initiated a national, multi-site, randomized clinical trial of alcoholism treatment entitled Matching Alcoholism Treatment to Client Heterogeneity (Project MATCH).

Project MATCH Research Group (PMRG)

The Project MATCH Research Group is composed of the steering committee members who developed the research protocol and executed all aspects of the trial. Names of the committee members and collaborating institutions can be found elsewhere (Project MATCH Research Group, 1997).

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Precontemplation

Individuals in this stage usually have no intention of changing their behavior, and typically deny having a problem (Prochaska et al., 1994).

Contemplation

Individuals in this stage acknowledge that they have a problem and begin to think seriously about solving the problem. Contemplators struggle to understand their problem, to see its causes, and to wonder about possible solutions (Prochaska et al., 1994).

Action

The action stage is the one in which individuals most overtly modify their behavior and their surroundings. This stage requires the greatest commitment of time and energy (Prochaska et al., 1994).

Maintenance

Individuals in this stage work to consolidate the gains attained during the action and other stages. Struggle to prevent lapses and relapse typifies this stage (Prochaska et al., 1994).

Motivation

Motivation is defined according to stage of readiness to change as described above. Motivation is used interchangeably with stage of change concerning client readiness to change drinking behavior.

Alcoholics Anonymous (AA)

The cornerstone of the AA model is the paradoxical belief that to gain control of one's life, one must give up control to a Higher Power. Fundamental in the AA philosophy is the belief that abstinence from substance use is not enough. Individuals must be willing to make attitudinal and behavioral changes in their lifestyle (Stevens & Smith, 2001 p. 283). The twelve steps to recovery are basic for these changes to occur (see Appendix D).

Twelve Step Facilitation (TSF)

The Twelve Step Facilitation approach is highlighted in this study given the emphasis placed on spirituality as it relates to religiosity and readiness to change. This approach requires client involvement with AA. As such, the treatment goals of this approach are congruent with the AA view of alcoholism and include the concepts of acceptance and surrender. Surrender is understood as acknowledgment on the part of the client that there is hope for recovery but only through accepting the reality of loss of control and by having faith that some Higher Power can help the individual whose own willpower has been defeated by alcoholism. Objectives include cognitive, emotional, behavioral, social, and spiritual outcomes. Spiritual objectives include: experiencing hope that they can arrest their alcoholism, developing a belief and trust in a power greater than their own will power, and acknowledging character defects, including specific immoral or unethical acts, and harm done to others as a result of their alcoholism (U.S. Department of Health and Human Services, 1995).

Religiosity

Religiosity is defined according to the Religious Background and Behaviors (RBB) questionnaire used in Project MATCH. Religious practices were assessed according to the frequency respondents engaged in the following behaviors: thought about God, prayed, meditated, attended worship services, read/studied scriptures/holy writings, and had direct experiences with God (Connors et al., 2001).

Causal Chain

The sequence of steps (pathway) postulated to lead from the intervention to its outcome. This pathway constitutes a step beyond testing if an intervention works to why (or why not) an intervention works (U.S. Department of Health and Human Services, 2001).

Mediator

Within a causal sequence of events, the mediators explain the "why and how" of the effect (i.e., the mediator variable, "B" mediates [or explains] the relationship between "A" and "C.").

Moderator

Within a causal sequence of events, the moderators influence the strength of the association between independent and outcome variables (i.e., the magnitude of the relationship between "A" and "C" differs depending on the level of "B.")

Urn Randomization

Equivalence of patient groups is a critical issue in matching research where multiple treatments are implemented. Urn randomization was created to handle such complex research designs and is systematically biased in favor of balance. This type of randomization is only appropriate for large samples. Urn randomization can be used with many covariates, both marginally and jointly, producing optimal multivariate equivalence of treatment groups for large sample sizes (Project MATCH Research Group, 2002).

CHAPTER 2: LITERATURE REVIEW

INTRODUCTION

There exists a limited amount of research on the role of religiosity and religious beliefs in addictions treatment and the behavior change processes of clients in treatment (Connors et al., 2001). However, both constructs have been addressed and measured using specific instruments for a major federal research project examining addiction treatment processes and outcomes. In addressing this research area, I will describe the watershed federal research project on addictions treatment that included both religiosity and readiness to change as variables. I will then discuss the addictions treatment literature on readiness to change and religiosity. Next, I will review the limited amount of information that is known about the interaction of specific demographic variables with readiness to change and with religiosity. Finally, I will detail the Federal study noted above. This study represents the largest, most rigorous psychotherapy study completed to date (Glaser et al., 1999).

PROJECT MATCH

In 1992 the National Institute on Alcohol Abuse and Alcoholism (NIAAA) initiated a national, multi-site, randomized clinical trial of alcoholism treatment entitled Matching Alcoholism Treatment to Client Heterogeneity (Project MATCH). The project was designed to address many of the limitations of prior treatment matching studies, particularly with regard to statistical power and rigorous testing of the matching hypothesis. The study involved two parallel, independent studies, one with clients recruited at five outpatient sites, the other at five sites with clients who received aftercare treatment following an episode of inpatient or intensive day hospital treatment. The overarching goal was to determine if various subgroups of alcohol dependent clients would respond differently to three manual-guided, individually delivered treatment approaches: Cognitive Behavioral Coping Skills Therapy (CBT), Motivational Enhancement Therapy (MET), and Twelve Step Facilitation Therapy (TSF).

Causal chain analyses applied to the Project MATCH data indicated that while treatment modality did not often relate to active ingredients in the treatment process, treatment process variables (i.e., working alliance) themselves were often predictive of client changes, including client drinking. This finding suggests the need to go beyond the "brand name" of modality to identify differences in actual therapeutic behaviors that interact with different client attributes. Therefore, this study proposes the framework of the transtheoretical model that identifies the working alliance and readiness to change as integral components of behavior change. As well, Karno et al. (in press) in examining tapes of therapy session found that over above treatment modality, therapist behaviors interact with client characteristics to affect drinking outcomes (Longabough & Wirtz, 2001). Based on these findings, therapists differences and, consequently, the variation in the working alliance, render the working alliance a plausible part of the behavior change process. The suggested interaction of therapy with client attributes, such as religiosity, lends support to the antecedent variable of religiosity in the aforementioned proposed causal model.

Overall, the findings of the study did not show robust matching effects, suggesting that client characteristics were not significant in treatment outcome across the three treatment approaches, regardless of the differing treatment philosophies. However, participation in any of the three treatments resulted in a sustained and positive outcome (Project MATCH Research Group, 1997). While the treatment matching hypotheses were not sustained, Project MATCH made a critical contribution to the field of addictions treatment and recovery. It is the largest, and most rigorous, psychotherapy research trial ever conducted. This trial offers a rich source of information for alcoholism treatment and psychotherapy. The extensive database and resulting research studies provide opportunities for further exploration and development of addictions treatment and understanding of clients. In January of 1998 this database was made accessible to qualified researchers for analyses and investigation (Project MATCH Research Group, 1997). Therefore, this database can be used to examine the constructs of religiosity and readiness to change as it applies to the field of addiction counseling. More on the methodology of Project MATCH will be presented at the end of this chapter.

READINESS TO CHANGE

Research on Construct

There was strong support in the Project MATCH study for the effect of initial motivational readiness to change on working alliance, client change processes, and on drinking frequency and intensity outcomes (U. S. Department of Health and Human Services, 2001) The motivation hypothesis from Project MATCH was developed based on the Stages of Change construct from the Transtheoretical Model for intentional human behavior change (DiClemente, Carbonari, Zweben, Morrel, & Lee, 2001). The Stages of Change model delineated the process of change into five stages. These stages were: precontemplation, contemplation, preparation, action, and maintenance.

Motivational readiness to change was determined to be one of the best predictors of drinking behavior during the treatment period and throughout the posttreatment period for the clients in the outpatient arm of the trial (Project MATCH Research Group, 1997). Determined stages of change were found to have significant relationships with drinking outcome. Specifically, readiness to change predicted alcohol consumption based on Readiness to Change Questionnaire results from patients discharged from general hospitals (Heather, Rollnick, & Bell, 1993). These findings suggested that readiness to change was an important phenomenon in addictions recovery.

Connors, DiClemente, Dermen, Kadden, Carroll, and Frone (2000) also suggested that readiness to change, in the form of motivation to change, was a predictor of therapeutic alliance. This predictive power was deemed important as the research supported therapeutic alliance as an important variable in addiction treatment outcome and aftercare (recovery). As readiness to change was considered instrumental in addictions recovery processes, an accurate and reliable measure of readiness to change is important. Project MATCH implemented an assessment for this study that underwent extensive scrutiny as to its validity and reliability.

Measurement of Readiness to Change

Motivational readiness to change was measured using a multi-item, multi-subscale instrument based on the University of Rhode Island Change Assessment (URICA). The URICA was originally developed to measure a client's stage of change in psychotherapy as a 32-item instrument. A 28-item version of the URICA was used with clients in alcoholism treatment to evaluate alcohol specific attitudes related to precontemplation, contemplation, action, and maintenance stages as on a continuum of readiness (DiClemente et al., 2001). Respondents were asked to complete the questionnaire relative to how he/she "feels about starting therapy or approaching problems in his/her life." Subjects were instructed to consider the extent to which they agreed or disagreed with statements related to the subject's drinking or drug use problems. The five possible responses ranged from "strongly disagree" (rated "1") to "strongly agree" (rated "5"). Four examples of the items included in the questionnaire are as follows:

1. It might be worthwhile to work on my problem.

2. I am finally doing some work on my problem.

3. Trying to change is pretty much a waste of time for me because the problem doesn't have to do with me.

4. I wish I had more ideas on how to solve my problem.

Subscale scores from this measure were used to create profiles related to the stages of change that were found to predict abstinence from drinking outcomes at a 3-year follow-up in Project MATCH (U.S. Department of Health and Human Services, 2000). Given this background, data derived from this measure will be useful for evaluating readiness to change in future research.

RELIGIOSITY

The theories and research on religiosity varied across disciplines. However, the following general assumptions were found in the literature regarding religiosity in addiction recovery: (a) religiosity is significant only in ecological contexts where religion is integral to the culture, (b) religiosity is relevant only to behavior for which societal values are unclear, (c) religiosity ceases to be related to drug use when considered with other well-known predictors, and (d) church attendance is an adequate measure of religiosity for research (Corwyn and Benda, 2000). Given the parameters of these general assumptions (particularly item "c"), religiosity must be examined within controlled studies in order to be established as a valid and influential variable.

The construct of religious behavior was examined in the Project MATCH study. The Project MATCH Research Group hypothesized that clients who were more comfortable with religious beliefs and practices would experience more beneficial outcomes from a treatment that include elements of spirituality (i.e., TSF). Tests of this matching hypothesis showed no support for the predicted match. However, analyses revealed that pretreatment religiosity did predict post-treatment drinking outcomes (Connors, et al., 2001). Because perspectives on defining religion and spirituality as they relate to addiction recovery varied, it is important to consider that Project MATCH utilized a specific measure of religiosity. This measure is described in detail in a following section. In contrast to the Project MATCH measure and outcomes, a study of adolescent urban public high school students found that personal religiosity (e.g., private prayer, evangelism), rather than church attendance, was a significant predictor of drug use (Corwyn & Benda, 2000). However, it is important to consider that religion is a multidimensional construct that can includes behavioral, cognitive, existential, spiritual, and social factors and definitions of the constructs are disparate across the literature (Connors, Tonigan, & Miller, 1996). The multidimensional nature was evident when the historical context of spirituality in addictions was considered.

History

Alcoholics Anonymous

The role of religiosity and spirituality has often been reported in the process of recovery from addiction to substances. Faith in a higher power and spirituality are inherent in the 12-step model of alcoholism treatment (Alcoholics Anonymous, 1976; 1981). Officially founded in 1935, AA emerged from the therapeutic influence of Carl Jung and the writings of William James. It is significant to note the development of AA stemmed from the influential relationship (working alliance) between Carl Jung and his client, Ronald H.

The primary modes of intervention for AA include the fellowship of AA groups and a prayerful relationship with a Higher Power. Clearly, relationship and what could be deemed "religious practices" (though carefully identified in a general and more inclusive way by AA) are important in the recovery process.

Twelve Step Facilitation

Many of the steps refer to either God or a higher power. Step 11 encourages continuing efforts to improve conscious contact with God through prayer and meditation, and the step involves a spiritual awakening (Connors et al., 1996). There have been many personal accounts of religious and spiritual experiences that have manifested as behavioral, cognitive, existential, and social changes directly related to addictions recovery (Kus, 1995). Though the application of religious and spiritual principles is not new to the field of addictions recovery, research that supports the potency of religiosity with regard to treatment is relatively recent.

Predictive Power

As previously mentioned, Corwyn and Benda (2000) conducted scientific research regarding religiosity and addiction. Corwyn and Benda (2000) found that personal religiosity (i.e., private prayer, evangelism), rather than church attendance, was a significant negative predictor of drug use for adolescent urban students. Additionally, research showed religiosity to be beneficial in facilitating positive health behaviors. Specifically, six major themes emerged from a study on faith and health self-management of rural older adults which related religion and health self-management: (a) prayer and faith in health self-management, (b) reading the Bible, (c) church services, (d) mental and spiritual health, (e) stories of physical healing, and (f) ambivalence (Arcury, Quandt, McDonald, & Bell, 2000). These behaviors were consistent with religious behaviors identified, measured, and supported as predictive variables in Project MATCH.

Religiosity

The role of religiosity and spirituality in addiction recovery has been reported in the literature. Though research is limited, some studies found religiosity to have predictive value.

Six major themes emerged from a study on faith and health self-management of rural older adults which related religion and health self-management: (a) prayer and faith in health self-management, (b) reading the Bible, (c) church services, (d) mental and spiritual health, (e) stories of physical healing, and (f) ambivalence (Arcury, Quandt, McDonald, & Bell, 2000). And as noted earlier, Corwyn and Benda (2000) found that personal religiosity (e.g., private prayer, evangelism), rather than church attendance, was a significant predictor of drug use for adolescent urban students.

As religiosity was deemed a potential factor in behavior change, in light of the PMRG discussion concerning treatment outcome and potential client characteristics (i.e., personal coping), perhaps religiosity should be considered a personal coping characteristic. Speculatively, development of personal coping characteristics such as religiosity may be predictive of quality life, which has been identified as a primary variable for future outcome research (PMRG, 2001). Areas such psychology, nursing, social work, and counseling currently recognize the importance of religiosity and spirituality in quality of life and the need for its inclusion in training and practice.

Psychology

The boundary between spiritual and psychotherapeutic activity has not been clearly delineated in the literature. Some of the reasons spirituality has not been adequately addressed in psychotherapy included: (a) schools of psychotherapy believed that spirituality was beyond the scope of the profession, (b) there was discomfort among educators and trainees with issues pertaining to spirituality, (c) counselor qualities have been de-emphasized as important in client outcome, and (d) intensive supervision for counseling in some training programs has decreased (Schultz-Ross & Gutheil, 1997).

However, the literature suggested that spirituality and psychotherapeutic activity was important to consider as a client's experience of the counselor may be related to the counselor's spirituality. Schultz-Ross and Gutheil (1997) asserted that the counselor's ability to discern the differences between psychopathological issues and spiritual beliefs – which may be influenced by a counselor's belief system as well as clients – was critical to the client's psychotherapeutic experience. Mahoney and Graci (1999) also emphasized the importance of distinguishing the difference between religiosity and spirituality.

In efforts made to make this distinction, a questionnaire was designed to determine lines of convergence and divergence between these two constructs. Specifically, the study outcome showed that experts in death studies reported that they considered themselves spiritual, but not necessarily religious. As well, there was agreement that the definition of spirituality was always changing. However, respondents agreed that spiritual experiences were important to learning and that spiritual persons had more hope and sense of meaning in their lives than non-spiritual peers. Themes from the questionnaire responses most strongly related with spirituality included charity, community, connectedness, compassion, forgiveness, hope, meaning, and morality. This study further supported the need to clarify what clients and counselors mean by "spiritual," and how spirituality and religiosity is manifested is important for clinical research and practice.

Lukoff and Turner (1992) addressed the need for incorporating psycho-religious and spiritual concerns in the Diagnostic Statistical Manual (APA). Clinical competence and comfort level with regard to religiosity and spirituality was deemed important in diagnosing spiritually related problems. Lukoff and Turner (1992) asserted that counselors need training with regard to religious and spiritually related problems because there are varied understandings of religiosity and spirituality. Further defined, such psycho-religious problems may include loss or questioning faith and conversion to a new faith. In contrast, psycho-spiritual problems may include mystical experiences and near death experiences. Specific recommendations for training were offered which included: diagnostic variables such as assessment of religious and spiritual issues, awareness of potential for iatrogenic harm from misdiagnosis of psycho-religious and psycho-spiritual problems, importance of research in these areas, and promoting awareness and application of spiritually oriented approaches to treatment.

Nursing

Recently in the medical field there has been a growing interest in the role of spirituality in healing physical ailments, including addictions. In a study of parish nurses, Tuck, Wallace, and Pullen (2001) found that the nurses scored high in spiritual perspectives and spiritual well-being and reported an emphasis on health promotion and education with their patients. The parish nurses engaged in four types of spiritual interventions. These types were: religious, interactional, relational, and professional. In this type of holistic nursing, the relationship between spirituality and health was strongly emphasized.

In a review of the nursing research-based literature oriented toward the use of spiritual coping mechanisms, Baldacchino and Draper (2001) suggested that the use of spiritual coping strategies enhanced self-empowerment. This review stated that the individual beset by illness comes to realize a lack of control in his/her life. Subsequent use of spiritual coping mechanisms served to enhance self-empowerment and determine meaning and purpose in illness. Extended to addictions, in this process it is important to consider the role of defense mechanisms (i.e., denial) and stage of readiness to change when assessing a client's level of "realization" concerning lack of control. As the authors suggested that holistic care incorporate facilitation of various spiritual coping strategies in order to safeguard the wholeness and integrity of the patients, it is important to consider patient motivation and readiness to change. This suggestion has significant implications for training and standards of competency in this area of clinical practice.

As the field of nursing as established a need for programming in spiritual care, Shih, Gau, Mao, Chen, and Lo (2001) developed a course to address these needs. In a study on the usefulness of this course, four types of help were determined: (a) help in clarifying the theoretical concepts of spiritual care, (b) help in providing a culturally relevant spiritual care plan, (c) help in self-disclosure of the nurses' personal value systems and spiritual needs, and (d) help in clarifying the symbolic meaning and impact of religious rituals. Subjects who participated in this course found it useful in application across clinical settings. This study provided some suggestions regarding the structure of training needed to competently translate spiritual care into practice.

McDowell, Galanter, Goldfarb, and Ligshutz (1996) questioned staff and patients on an in-patient dual-diagnosis unit regarding the role of spirituality in treatment. A survey was completed by one hundred patients and 31 members of the nursing staff. Results showed that patients and staff were equally spiritually oriented. However, patients viewed spirituality as critical to their recovery and placed value on spiritual programming in treatment. Staff underestimated the patients' level of spirituality and the importance placed spiritual issues. The authors suggested that more attention should be given to spirituality in addiction treatment. Clearly, the implications for staff development include training in spirituality and application to treatment.

Using focus groups with clients and mental health nursing professionals, Greasley et al. (2001) found a lack of attention to spirituality in mental health nursing. The spiritual area of meaning and purpose was addressed based on outward expressions of religious or spiritual practices. However, a need for training concerning the role and application of spirituality and integration of more holistic models of care was suggested in the form of multidisciplinary education in spiritual care. Based on these suggestions, spiritual care was associated with the quality of interpersonal care in terms of the expression of love and compassion toward patients (i.e., bond element of working alliance).

Psychiatry

Goldfarb, Galanter, McDowell, Lifshutz, and Dermatis (1996) compared medical students' views on the spirituality of dually diagnosed patients. In addition, they asked about the importance of spirituality in the treatment of addiction. The study found that medical students treating substance abuse were significantly less religiously and spiritually oriented than the patients they treated. As well, the students did not rate spirituality as an important component in the care of these patients. Goldfarb et al. (1996) suggested that the findings indicated it is clinically important to train medical students in the potential importance of spirituality in addiction treatment.

Furthermore, research of medical students regarding attitude toward religion showed that students with high levels of religiosity were more likely to promote training and participation in religious assessment and behavior in a medical treatment facility. Conclusions from this study indicated that a significant minority of students supported attention to religious issues in the training curriculum. These results suggest that student religiosity is related to their support of religious assessment with patients and the incorporation of religious issues as a part of the medical school training program (Chibnall, Call, Jeral, & Holthaus, 2000).

However, the literature reported that psychiatry is taking a look at the role of spirituality and religion in patient mental health. Turbott (1996) conducted a review of psychiatric, sociological, and religious studies. Religiosity presented as an important and influential variable across studies. Turbott's (1996) review supported the place of religiosity and spirituality in mental health and noted that psychiatric training magnified the "religiosity gap" between doctors and patients. In New Zealand, a politically mandated bicultural approach required that mental health providers understood Maori spirituality. Turbott (1996) concluded that psychiatry should reconsider the role of spirituality and religiosity and educate trainees and practitioners as to vocabulary and concepts of religion and spirituality. Turbott (1996) suggested that, as a result, patients and psychiatrists would experience a greater working alliance and subsequent enhanced outcome.

Social Work

Okundaye, Smith, and Lawrence-Webb (2001) addressed the area of addictions treatment in social work. The authors explored the importance of applying 12-Step program principles to treatment and the inherent need to address spirituality within this model of treatment. Ultimately, the article concluded that social workers are lacking in preparation and understanding regarding programs that incorporated spirituality. The authors asserted that social workers must continue to increase their understanding of spirituality in the recovery process of addicted clients.

Counseling

Within the literature, spirituality and religiosity were also considered important in counseling. Problems and suggestions related to religiosity and spirituality in counseling were explored. For example, Denys (1997) suggested that therapeutic “fuzziness” contributed to devaluing and dismissal of client spiritual and religious issues. Specifically, when what is meant by client religiosity is unclear in therapy these areas may be overlooked or negated. The application of attending skills directed at clarifying issues of spirituality would reduce the therapeutic “fuzziness.” Denys (1997) emphasized the importance of differentiating across religion, spirituality, and theology in order to ultimately illuminate the client’s capacity for meaning making is an important part of the therapeutic process.

Though definitions of religiosity and spirituality are varied, the field of addiction counseling has embraced the idea of spirituality within the 12-step approach to treatment. Based on a survey of addiction treatment staff members, Forman et al. (2001) reported that more than 80% of respondents supported increased use of research-based innovations, 12-step/traditional approaches, and spirituality in addiction treatment.

As well, Thomas (1989) stressed that attention to counselor healing and health was an important aspect of pre-service addiction training due to the high counselor burnout rate in this specialty area. As in nursing, addictions counselors have a high turnover due to stress and varying outcomes across clients. Thomas (1989) noted that integration of spirituality in clinicians' lives and work was important to a sense of well-being and purpose at work. This point further supported the importance of addressing spirituality in training for benefit of both clients and clinicians alike. Given this view, spirituality can be understood as a coping mechanism that is preventative and facilitative of healing and well-being.

In general, religiosity is important in practice for client and counselor alike. Research supports the importance of religiosity in the counseling process through the counseling relationship and treatment modality. Outcomes from Project MATCH favored TSF, showing that outpatients who received TSF were more likely to remain completely abstinent during the year after treatment than those in the other two groups (Glaser et al., 1999). Given that religiosity is considered a predictive variable in human development and in addiction, a strong measure of the construct is needed. For this paper, the construct "religiosity" was derived from the Religious Background and Behaviors (RBB) questionnaire (Connors, Tonigan, & Miller, 1996).

Measurement of Religiosity

The need for a reliable measure a measure of religiosity prompted researchers to develop and instrument for use in Project MATCH (Connors et al., 2001). This measure was entitled Religious Background and Behavior (RBB).

The RBB is a 13-item instrument. The RBB measures religious behaviors in the areas of prayer and meditation, reading of scripture, attendance at worship services, and direct experiences of God. Item #1 asked respondents to select a global descriptor of religiosity (i.e., atheist, agnostic, unsure, spiritual, or religious.) Items ${}^{\#}2$-${}^{\#}7$ asked respondents to indicate the frequency with which they engaged in the following behaviors during the past year: thought about God, prayed, meditated, attended worship services, read-studied scriptures-holy writings, and had direct experiences of God. Items ${}^{\#}8$-${}^{\#}13$ repeated the previous 6 items using a lifetime occurrence rather than a past year metric.

Examination of the RBB total scores indicated that aftercare clients reported significantly higher ($p<.01$) mean RBB scores ($M = 38.61$, $SD = 11.31$) than outpatients ($M = 35.36$, $SD = 10.94$), with no main effect of gender on RBB mean scores ($p<.06$). Intake RBB total scores were weakly and positively related with AA attendance in the 90 days prior to study recruitment ($r = 0.11$ for outpatients, $r =0.13$ for aftercare clients), and involvement in AA for the year prior to recruitment was moderately related with RBB total scores ($r = 0.22$ for outpatients, $r = 0.27$ for aftercare clients).

Virtually no relationship was found within both study arms between RBB scores and measures of psychiatric severity. RBB scores were more related to percentage of days abstinent (PDA), having a weak association in the aftercare arm ($r = 0.15$) and no significant association in the outpatient arm ($r = 0.08$). Consistent with measures of alcohol consumption, RBB scores were unrelated or weakly related to adverse consequences reported by aftercare clients ($r = 0.01$) and outpatient clients ($r = 0.10$).

An evaluation of the RBB suggested that it might be a useful measure for studying the role of religiosity in the addictions field, specifically as a dependent, mediator, or independent variable in research. Connors and Miller (1996) cautioned that no single empirical measure could provide a complete calculus for a human behavior. While the RBB is supported as a measure of religiosity in psychotherapy research, it is important to remember that there are dimensions of religiosity that the RBB did not address. These dimensions included life purpose, growth and striving, theological perspective, tolerance, and extrinsic versus intrinsic orientation. With these qualifying statements in mind, the RBB was shown to have strong test/re-test reliability and was deemed useful and well supported for use in research studies.

BACKGROUND VARIABLES

This section reviews the literature on client background variables that have been found in previous studies to be related to client readiness to change and/or religiosity. These client background variables include gender, socioeconomic status, minority status, and age.

Readiness to Change

Gender

Gender differences in readiness to change have not been fully evaluated with regard to addictions recovery. However, gender differences in stages of change have been examined by Audrain et al. (1997). Readiness to quit smoking, perceived benefits and costs of smoking and self-efficacy were studied in relation to gender. Gender differences emerged in this study, showing that women reported more pros and more cons of smoking than did men. Also, women reported lower confidence in quitting than did men. As smoking is considered one form of addiction, these results may foretell the outcomes of similar studies on alcohol and drug related behavior change.

As well, Brown, Melchior, Panter, Slaughter, and Huba (2000) reported that gender was important in understanding the progression of stages to change specifically as they relate to women entering substance abuse treatment programs for women. Urgency and immediacy of treatment issues were hypothesized as important factors in readiness to change for women in the process of help-seeking. Additionally, in a study of pretreatment readiness for change in male alcohol dependent subjects, Isenhart (1997) found that a relationship existed between pretreatment readiness for change and both the decision to drink and to engage in recovery behaviors. In both these studies, implications were made regarding treatment practices and considering the role of gender in readiness to change. Though results such as these supported a gender effect, few studies addressed gender differences and gender as an important variable in readiness to change. Therefore, it is important to consider the potential effect gender may or may not have on readiness to change.

Socioeconomic Status

In addition to gender, significant analysis of socioeconomic status (SES) with regard to readiness to change was lacking in the literature. Studies were conducted relative to employment and education, suggesting the SES may be an influencing variable in addiction and readiness to change. For example, Conigliaro et al. (2000) reported that unemployment was associated with clinical indicators for alcohol problems based on a trial of brief interventions for drinking problems with primary care patients. And, education was found to be related to stage distribution with the proportion of the sample in precontemplation decreasing as educational level increased (Velicer, Fava, Prochaska, Abrams, Emmons, & Pierce, 1995). The lack of research in the addictions literature concerning SES and readiness to change suggests that it is a background variable that warrants further investigation.

Racial/Ethnicity Status

Minority status has been studied with regard to lifestyle and readiness to change. However, findings are not necessarily directly related to addictions. One study on addictions recovery found race was a factor in addictions recovery but not for readiness to change for African American patients enrolled in a trial of brief interventions for problem drinking (Conigliaro et al., 2000). Researchers concluded that African Americans may be better equipped to deal with drinking problems due to well-developed coping mechanisms and this ability may be predictive of stage of readiness to change.

In another area of behavior change, a study of readiness to exercise in ethnically diverse women found significant differences across minority groups (Bull, Eyler, King, & Brownson 2001). Specifically, black women were less likely to be in the active stages (e.g., preparation, action, maintenance) than were Hispanics and Alaskan Native/American Native women. Velicer et al. (1995) found minor differences in stage distribution (i.e., readiness to change) for Hispanic clients in a study of readiness to change among smokers. As well, Audrain et al. (1997) studied ethnic differences in readiness to change smoking behavior where white smokers reported more benefits of smoking than African American smokers, thus hinting at stage of readiness to change differences.

Overall, it would appear that some variation occurs regarding minority status and readiness to change. The significance of minority status as a variable, which influences readiness to change relative to addiction recovery, warrants further investigation with regard to the predictive power.

Age

Finally, within the literature, age did not emerge as a significant factor in stages and readiness to change. Velicer et al. (1995) reported that stage distribution was generally stable across age groups with the exception of the 65 years and older group when stages of change across smokers were evaluated. The stability of distribution suggested that interventions that were appropriately matched to stage could be applied across all age groups.

Religiosity

In this section, the literature on the relationship of religiosity to the previously mentioned background variables will be reviewed. While the Project MATCH researchers did not find any relationships between religiosity and gender, minority status, SES, and age, other researchers have discovered such relationships.

Gender

Loewenthal, McLeod, and Cinnirella (2002) challenged the general assumption that women were more religious than men. In a study that investigated gender differences concerning religious involvement, women were found to describe themselves as significantly less active in religion than did men. However, this effect was confined to non-Christian groups (i.e., Hindu, Jewish, and Muslim), thus suggesting that gender differences in religiosity were culture-specific and dependent on measurements used (Loewenthal et al., 2002). Supporting the effect of gender on religiosity, Corwyn and Benda (2000) found that gender as well as religiosity was a significant predictor of drug use for adolescent urban students. Given these reports, gender presented as having some interaction with religiosity. Therefore, gender appears to be a salient background variable in relation to religiosity.

Socioeconomic Status

The addictions literature was lacking studies examining the relationship of socioeconomic status to religiosity. However, one study examined income and minority status as they related to stress and religiosity. Littlefield (1999) studied stress and African American women with regard to protective factors from a female perspective. A significant relationship emerged between religiosity and stress where religiosity for women with incomes of $6,000 to $11,999 was protective against stress. This study hinted at the possibility that there may be a relationship between socioeconomic status and religiosity. Therefore, further examination of this background variable and its relationship to religiosity is warranted.

Minority Status

Minority status and religiosity were addressed in the literature regarding addictions. Corwyn and Benda (2000) found that race and religiosity were significant predictors of drug use for adolescent urban students. Littlefield (1999) studied stress and African American women and found religiosity to be a protective factor with this population. These studies indicated that minority status should be considered when researching religiosity, particularly as it relates to addiction.

Age

Overall, the addictions research literature did not suggest that the variable age interacts with religiosity. This may be due to a lack of studies that included a broad range of subject ages. However, like with readiness to change, older age and religiosity appeared to be related. For example, based on a study of rural adults age 70 years and older, Arcury et al. (2000) reported that faith and religious activities provided an important support in health self-management in older adults with little variation across gender, ethnicity, or health status.

Overall, the literature is scant with regard to the aforementioned demographics relative to readiness to change and religiosity. However, the studies presented provide a glimpse into potential relationships across demographics as they relate to addictions recovery and the influences of readiness to change and religiosity.

Since this study employed the Project MATCH database and this database represents the state of the art in the profession, it is appropriate to describe the construction of the database. This description follows in the next section.

PROJECT MATCH METHODOLOGY

Participants

A total of 1726 subjects of diverse personal characteristics and alcohol problem severity, were randomly assigned to three treatments at sites located in nine locations nationally for Project MATCH. There were 952 outpatients (72% males), and 774 after care patients (80% males). The following patient characteristics were examined: alcohol problem severity, cognitive impairment, conceptual level, gender, meaning seeking, readiness for change, psychiatric severity, social support for drinking, sociopathy, typology classification (i.e., Type A-Type B), alcohol dependence, anger, antisocial personality, assertion of autonomy, psychiatric diagnosis, prior engagement in AA, self-efficacy, and social functioning.

Project MATCH consisted of two independent arms of investigation, “outpatient” and “aftercare” studies. Both studies were controlled to be as similar as possible. In the outpatient arm, participants were recruited directly from the community or from outpatient treatment centers. In the aftercare arm, the treatments were offered to subjects following completion of inpatient or intensive day hospital treatment. The outpatient and aftercare arms of the trial involved identical randomization procedures, follow-up evaluations, matching hypotheses and analytic techniques.

Subjects were recruited at nine clinical research units that were affiliated with multiple treatment facilities. The sites reflect geographic and client heterogeneity. Out-patient sites recruited subjects from out-patient clinics and from the community through advertisements. Aftercare sites included subjects who had been treated in private, public, and Department of Veterans Affairs facilities.

Inclusion Criteria

Inclusion criteria for the outpatient study were: current DSM-III-R diagnosis of alcohol abuse or dependence; alcohol as the principal drug of abuse; active drinking during the 3 months prior to entrance into the study, minimum age of 18; and minimum sixth grade reading level. Exclusion criteria were: a DSM-III-R diagnosis of current dependence on sedative/hypnotic drugs, stimulants, cocaine or opiates; intravenous drug use in the prior 6 months; currently a danger to self or others; probation/parole requirements that might interfere with protocol participation; lack of clear prospects for residential stability; inability to identify at least on "locator" person to assist in tracking for follow-up assessments; acute psychosis; severe organic impairment; or involvement in alternative treatment for alcohol-related problems other than that provided by Project MATCH (defined as more than 6 hours of non-study treatment, except for self-help groups such as Alcoholics Anonymous [AA], during the 3 months of study treatment).

Criteria for the aftercare arm were identical, with the following modifications: DSM-III-R symptoms of alcohol abuse or dependence and requisite drinking behavior were assessed for 3 months prior to the inpatient or day hospital admission; completion of program of a least 7 days inpatient or intensive day hospital treatment (not simply detoxification); and referral for aftercare treatment by the inpatient or day hospital treatment staff.

Other general admission requirements for all subjects were: willingness to accept randomization to any of the treatment conditions; residence within reasonable commuting distance, with available transportation to sessions; and completion of prior detoxification when medically indicated.

Subject Characteristics

Three of the five aftercare sites were VA medical centers, which restricted recruitment of women in that arm of the study. Subjects recruited into the two study arms differed in predictable ways: the outpatient sample tended to be significantly younger, more residentially stable and less dependent on alcohol than the aftercare sample. A smaller proportion of outpatients (45%) than aftercare clients reported prior alcoholism treatment (62%). The overwhelming number of clients in each arm (95% in outpatient, 98% in aftercare) met the criteria for alcohol dependence as opposed to alcohol abuse, as assessed using a structured clinical interview. Although individuals dependent on other drugs were excluded from the trial, there was a sizable minority of subjects who reported some types of illicit drug use in the 90 days prior to recruitment. In the outpatient arm about 44% of the clients reported some use of illicit drugs, with men (46%) reporting a higher rate of use than women (36%). In the aftercare arm about 32% of the clients reported pretreatment use of an illicit drug, with women (36%) reporting a higher rate than men (31%). Frequency of other drug use was low. For marijuana, the median days of marijuana use was low (ranging from 1 day during the 90-day pretreatment period for aftercare women to 4 days for outpatient men).

Sample Representativeness

In order to recruit a heterogeneous sample, a broad-based recruitment effort was undertaken in multiple sites. An initial screening interview was conducted with 2,193 potential participants for the outpatient study and 2,288 for the aftercare study. Not included in these figures are clients who could be identified as clearly ineligible (e.g., primary dependence on drugs other than alcohol) and not administered the screening interview. During the initial screening 459 potential participants (49 in outpatient and 410 in aftercare) indicated that they were not interested in participating. The major reasons cited for not taking part were logistical: 45% indicated the inconvenient location of the study or transportation problems, 21% stated that too much time was required, 17% reported that they planned to relocate and 16% stated that they preferred some other treatment option not offered in Project MATCH. Of the remaining 2,144 potential outpatient participants and 1,878 potential aftercare participants, 952 (44%) were randomized in the outpatient arm and 774 (41%) were randomized in the aftercare arm. Primary reasons for ineligibility were: failure to complete the assessment battery; residential instability; legal or probation problems that prevented randomization to treatment or protocol compliance; co-morbid diagnosis preempting alcoholism treatment; anticipation of concurrent therapy in excess of that permitted in Project MATCH; failure to meet DSM-III-R criteria for alcohol abuse or dependence diagnosis; and inability to provide a "locator." A majority (67%) of the non-participants had multiple reasons cited for exclusion. All randomized participants are included in the analysis.

Although it is difficult to ascertain the representativeness of any sample of alcoholics seeking treatment, these data indicate that (a) most of the subjects who passed the initial screen but who were later excluded from participation were excluded appropriately because they did not satisfy the inclusion or exclusion criteria; and (b) among those found to be eligible for participation, refusals were attributable to logistical considerations rather than personal factors, such as motivation. It is unlikely that these logistical problems limited researchers to draw inferences about matching effects, nor is there reason to believe that the recruitment procedures failed to provide a broad range of clients typically seen in these types of clinical settings.

Procedures

Subjects were recruited over a 2-year period using a variety of strategies aimed at maximizing sample heterogeneity. Following an initial screening interview to evaluate inclusion/exclusion criteria, subjects provided informed consent and participated in three intake sessions comprised of personal interviews, computer assisted assessment and completion of self-administered questionnaires. As a quality assurance measure, all interviews were audio taped. Blood and urine samples were also obtained at intake (in hospital settings, patients gave permission to access these data) and, where possible, an interview was conducted with an individual familiar with the subjects drinking (a collateral). For outpatient participants, the baseline assessment included a medical evaluation to determine the need for medically supervised detoxification. If such a need was indicated, clients were detoxified prior to randomization. Randomization to treatment was performed using a computerized urn balancing program designed to minimize differences on critical demographic and matching variables among subjects across the three study treatment in each arm. In fact, there were no significant differences on dependent measures or matching variables by treatment condition at baseline assessment.

Following randomization, treatment lasted for 12 weeks. Therapy sessions were videotaped to assure quality delivery of treatment and to provide the data needed for a detailed investigation of treatment process. Follow-up assessments were scheduled at 3 (end of treatment), 6, 9, 12, and 15 months after the first therapy session. The 3rd , 9th , and 15th month sessions were major evaluation points, involving the collection of blood and urine samples and collateral interviews.

Assessment Instruments and Procedures

Intake Assessment

If an individual appeared to meet the inclusion criteria during the initial screening, a diagnostic evaluation interview was scheduled to explore eligibility criteria in greater detail. This session consisted of brief demographic history; the alcohol, drug, and psychotic screen sections of the Structured Clinical Interview for DSM-III-R; and the legal, psychiatric and family history sections of the Addiction Severity Index. Subjects also completed a 60-minute battery of self-administered questionnaires.

A subsequent pretreatment evaluation session focused on drinking behavior and previous treatment experiences. Estimates of alcohol consumption were obtained by means of the Form 90 (Miller, 1996), and interview procedure combining calendar memory cues from time-line follow-back methodology and drinking pattern estimation procedures from the Comprehensive Drinking Profile. In addition to estimating alcohol consumption for each of the previous 90 days, the Form 90 elicits information about drug use, treatment experiences, incarceration and involvement with AA. Also administered during this session were several neuropsychological measures of cognitive function and a second packet of self-report questionnaires.

The final assessment session, the psychological evaluation, consisted of social support measures and psychological assessments, including the Computerized Diagnostic Interview Schedule (C-DIS), for purposes of identifying anxiety, mood, and antisocial personality disorders.

On average the entire assessment battery, including self-report questionnaires, took about 8 hours to complete. A detailed listing of the measures included in the full battery can be found in Connors et al. (1994).

Follow-up Assessments

Each of the five follow-up assessment session included a core set of procedures and instruments. To facilitate data collection from collaterals and follow-up tracking, available information regarding the residences and telephone numbers of the client, collateral informants and potential "locators" was reviewed and updated. The follow-up version of the Form 90 was administered using the date of the last interview as the starting point. There were also telephone interview (Form 90-T) and quick follow-up interview (Form 90-Q) versions for uncooperative clients. If clients missed a follow-up session, they were assisted at the next session in reconstructing their alcohol consumption for the previous period. Continuous daily drinking estimates were produced for the entire 1-year posttreatment follow-up period. The Drinker Inventory Consequences (DrInC) (Miller, Tonigan, & Longabaugh, 1995) also was administered at each of the five follow-up evaluations to assess problems associated with alcohol use. Other baseline assessment instruments were repeated at three major assessment points (3rd , 9th , and 15th months following entry into the study).

Collateral and Biochemical Measures

Collateral informants and laboratory tests were used to monitor changes in subjects' alcohol consumption and to corroborate self-report measures. Blood samples were analyzed to monitor liver enzymes. Carbohydrate-deficient transferring (CDT), a marker for heavy drinking, was assessed in the 15th month blood sample. Urine samples were screened for recent use of five psychoactive substances: opiates, cannabinoids, amphetamines, benzodiazepines, and cocaine. CDT and urine specimens were assayed at a central laboratory (Clinical Neurobiology Laboratory, Medical University of South Carolina, Charleston).

Completeness of Data

For both arms of the study, data for over 90% of the subjects were collected for all five (at 3, 6, 9, and 15 month intervals) follow-up points. This figure includes subjects for whom data from an earlier time point were reconstructed at a later follow-up (the frequency of such reconstructions for any given assessment period ranged from 4-6% for outpatient participants and from 4-8% for aftercare participants). The Form 90-T (telephone) interview was used infrequently for follow-up data collection (the rates for follow-ups at 3, 6, 9, and 15 months were respectively, 3%, 8%, 6%, and 7% for the outpatient study and 5%, 19%, 6%, and 6% for the aftercare study). The Form 90 (quick) for uncooperative clients was also used rarely. At the 1-year post-treatment evaluation session, 93% of the living aftercare clients and 92% of the living outpatient clients were interviewed. Client deaths during active treatment (n = 3) and follow-up (n = 24) phases of the trial totaled 1.6% of those randomized. Blood samples were obtained at 1-year posttreatment from 83% of the aftercare and 82% of the outpatient clients. Urine samples were provided by 85% of the clients for each arm of the study. Collateral informants were contacted at baseline and at 3, 9, and 15 months and interviewed suing the collateral form of the Form 90. Contact rates for named collaterals at baseline were 87% and 83% in the aftercare and outpatient arms, respectively, and declined to 78% and 75% at the 1-year posttreatment evaluation (Project MATCH Research Group, 1993).

Participants and Procedures

The normative sample included 1,726 alcohol abusers participating in Project MATCH (Project MATCH Research Group, 1993). As part of their participation in the study, the clients completed an extensive pretreatment assessment battery (described in Connors et al., 1994). The assessment spanned three sessions that included structured interview and self-report questionnaires.

The order of questionnaires associated with the respective assessment sessions was rotated to control for order effects. The RBB was administered in the first three assessment sessions.

An independent test-retest sample comprised 82 participants recruited to participate in a test-retest study of Project MATCH interviewer reliability. The sample included a diversity of drinkers, ranging from moderate drinkers to alcoholics. They were recruited from a Veterans Affairs Medical Center inpatient substance abuse program (n=20), Veteran Affairs Medical Clinics (n=5), a college psychology clinic (n=18), alcohol treatment outcome samples (n=22), and from among college student heavy drinkers (n=17). The sample was recruited to represent the range of drinking behaviors likely to be encountered at admission and follow-up assessments in Project MATCH. As part of their participation, these respondents completed a self-assessment packet of questionnaires on two occasions separated by a 2-day period. The RBB was included in the self-assessment packet, and the order of questionnaires rotated. Although the 48 hour test-retest period presented some concerns about the issue of participant recall, such concerns were tempered somewhat by the size of the questionnaire battery, which would have made it more difficult to recall specific item responses.

The Project MATCH normative sample of treatment seekers averaged 40 years of age and 13 years of education; 76% were male. In terms of pretreatment drinking, they reported drinking 62 days in the 90-day pretreatment window and an average of 17 drinks per drinking day. The test re-test sample, which included a population of non-problem as well as problem drinkers averaged 31 years if age and 14 years of education. Seventy-eight percent of the participants were male. They described an average of 37 days of drinking during a 90-day pretest assessment window and an average of 13 drinks per drinking day.

CONCLUSION

There are many potential implications for clinical training and practice if religiosity is related to readiness to change. As the research indicated, readiness to change was related to therapeutic alliance, which was identified as a significant predictor of treatment outcome. Therefore, counselor competencies in discussing and addressing a client's religiosity within the context of addictions treatment may bear weight in clients' readiness to change and subsequent recovery behaviors. However, before any conclusions can be made about training and practice, further research should address client motivation and the interaction of religiosity and readiness to change.

CHAPTER 3: METHOD

This chapter will outline the methods that will be employed in this study. Specific topics addressed include participants, procedures, measures, data analysis, and human subjects issues.

PARTICIPANTS

Subjects for this study will be members that comprised the aftercare arm of the Project MATCH study. This arm includes a total of 772 subjects, with 155 (20%) women and 619 (80%) men. Of the 772 subjects, 80% were white, 15% African American, 3% Hispanic, and 1% Other Ethnicity. Before data analysis two subjects were eliminated because they lacked data in demographic variables that are unable to be replaced by missing data algorithms.

PROCEDURES

Data was pulled from readiness, religiosity, and demographic data sets of the Project MATCH study. These sets were combined, eliminating extraneous variables and eliminating data from the outpatient arm of Project MATCH.

MEASURES

Predictor Variables

Religiosity

Description

Religiosity was defined according to the RRB (see Appendix A). Religious practices were assessed according to the frequency respondents engaged in the following behaviors: thought about God, prayed, meditated, attended worship services, read/studied scriptures/holy writings, and had direct experiences with God. The RBB was shown to have strong test/re-test reliability and was deemed useful and well supported for use in research studies. The test-retest correlation over a 3-day interval was found to be 0.97, and the internal item consistency for the combined study arms (outpatient and aftercare) at intake to be 0.86 (N=1637).

Scoring

Scoring of the first item required a score assignment from 0-4 ranging from atheist to religious (atheist = 0, agnostic = 1, and so forth). Remaining responses were recoded before summing to calculate summary scale scores. Specifically, each of the remaining responses must be reset such that 1 = 0, 2 = 1, 3 = 2, 4 = 3 and so forth. This procedure is done regardless of whether an item has a Likert range of 3 or 8 and is intended to establish a RBB scaling floor of zero (rather than 13).

Gender

Description

Gender will be determined by respondents' choice between categories of male or female in the interview process.

Coding

Gender will be coded for data analyses in the following manner:

1 = Male

2 = Female

Racial/Ethnicity Status

Description

Racial/Ethnicity status will be determined by client report from the category choices of White, African American, Hispanic-Mexican, Hispanic-Puerto Rican, Hispanic-Cuban, Other Hispanic, American Indian, Asian American, and Other.

Coding

For the purpose of regression analysis, Racial/Ethnicity status will be transformed into a binomial variable as follows:

0 = White

1 = Person of Color

Socioeconomic Status

Socioeconomic status was determined by the Hollingshead scale, a classic, commonly employed measure of SES (Hollingshead & Redlich, 1958). Scoring. Socioeconomic status will be scored on a 1-9 ordinal scale according to the Hollingshead SES measure.

Criterion Variable

Readiness to Change

Description

Motivational readiness to change was measured using a multi-item, multi-subscale instrument based on the University of Rhode Island Change Assessment (URICA) (see Appendix B). As previously mentioned, the URICA defines readiness to change according to a client's stage of change regarding drinking behavior. The URICA readiness to change items were designed to get at the stage in which the client was motivated to participate in recovery behaviors. An example of an item aimed at measuring stage of change is, "Would you like to reduce or quit drinking if you could do so easily (No = 0, Yes = 1). This measure demonstrated solid psychometric properties with alpha internal consistency coefficients for the four subscales ranging from 0.74 to 0.82 in the aftercare arm and 0.75 to 0.86 in the outpatient arm.

Scoring

The readiness score for each client was calculated by adding the means of the contemplation, action, and maintenance subscales together and then subtracting the precontemplation mean. This scoring reflects a second-order factor. This measure was administered at baseline and at the 3-month posttreatment assessments.

DATA ANALYSIS

Overview

Stepwise multiple regression was used as a statistical procedure to analyze the data and test the null hypothesis. Religiosity (the predictor variable) will be entered and regressed against readiness to change (the criterion variable) to determine the independent contribution above and beyond the effects of the background variables. Statistical analyses will be used to determine information on all the predictors as a group (R2) as well as contributions of individual predictors by examining their bivariate correlations (r). Moreover, stepwise multiple regression will give partial regression coefficients in the form of standardized beta weights that can be used to formulate multiple regression equations. These can be interpreted as the amount of change that is expected to occur in the outcome variable per unit of change in the predictor variable (Agresti & Finlay, 1997). Thus, these methods of statistical analyses afford the study options in exploration of the data.

The statistics program SPSS was used for the regression analyses. Using SPSS, predictor variables must be entered together as a block or separately, each within their own block. SPSS hold each predictor constant against the other when variables are entered together as a block. When each predictor is entered as a separate block, the order of the variables influences their explanatory power within the regression. Therefore, it is necessary to have a rationale for the order when opting to enter predictor variables as separate blocks within the regression analyses. The more conservative form of multiple regression analyses is to enter predictor variables that are oriented together as a block, allowing the computer to determine order of entry into the regression. However, in this process SPSS will give order priority to the variables with the largest R2, or proportion of explained variance. In this study, there is no predetermined rationale to help determine the order of entry for the predictor variables, religiosity will be entered as the first block and background variables will be entered as the second block for the regression on readiness to change in order to maximize potential explanatory power in this exploratory study.

Missing Values

Missing values will be handled using the expectation maximization (EM) procedure in SPSS. This procedure was selected because the missing values were primarily random in nature rather than occurring in a systematic fashion. EM "is the recommended approach for dealing with most data problems. It has the advantage of the SPSS implementation of the regression approach, plus it uses additional information through the iteration process" (Acock, 1997, p. 94). Using the algorithm to estimate the means, the covariance and Pearson correlations of quantitative variables, EM computes expected values on the observed data and estimates of the parameters then calculates maximum likelihood estimates of the parameters based on the expected values.

TYPE OF STEPWISE REGRESSION STUDY

Stepwise multiple regression with forward inclusion will be used to investigate the relationship of the predictor variables to the criterion variable Readiness to Change. The following subsections detail how the prediction equation was determined.

Block 1

The predictor variable Religiosity was entered and regressed against the criterion variable Readiness to Change.

Block 2

The predictor variables Gender, Racial/Ethnicity Status, and Socioeconomic Status were entered as independent variables in a stepwise method and regressed against the criterion variable Readiness to Change.

HUMAN SUBJECTS APPROVAL

The Project MATCH research process was approved by the Institutional Review Boards (IRBs) of all 10 participating institutions. The Project MATCH Coordinating Center has approved the use of this dataset for the present dissertation study (see Appendix C). The research committee reviewed and approved the author's application and subsequently forwarded the requested dataset to the author for this proposed study. An application was made to the Oregon State University IRB for approval under exempt status given the archival and anonymous nature of the data set. The study was approved by the Oregon State IRB (see Appendix D).

SUMMARY

This chapter details the methods and procedures employed for data collection and analyses in this study. As described, the aftercare arm participants will be drawn from the Project MATCH database for analyses and examination in this dissertation. Measures of religiosity and readiness to change will be used to determine the predictive value of religiosity to readiness to change in addiction. These measures are the RBB, which will be used to measure Religiosity and the URICA, which will be used to measure Readiness to Change. Finally, the coding of the variables for data entry was explained, as well as the procedure for stepwise multiple regression.

CHAPTER 4: RESULTS

INTRODUCTION

The specific contribution of background variables and religiosity to readiness to change for Project MATCH aftercare arm participants was examined using stepwise multiple regression. The predictor set included the background variables (ethnicity, socioeconomic status, and gender) and religiosity, as measured by the RBB. The criterion variable examined was readiness to change as measured by the URICA. This chapter presents the results of the statistical analysis.
First, this chapter will detail the descriptive statistics of the background variables and religiosity. The following section will present the correlations between the predictor variable religiosity and readiness to change. Finally, the results of the stepwise multiple regression will be described.

RELIGIOUS BELIEFS AND BEHAVIORS: DESCRIPTIVE STATISTICS

This study examined participants RBB scores based on responses acquired by the Project MATCH research team. As explained in Chapter 3, the religiosity was defined by the RBB. Religious practices were assessed according to the frequency respondents engaged in the following behaviors: thought about God, prayed, meditated, attended worship services, read/studied scriptures/holy writings, and had direct experiences with God. Table 1 shows the descriptive statistics for religiosity based on the RBB scores, including the number of subjects, mean, and standard deviation.

Participants readiness to change scores were measured using the URICA as described in Chapter 3. The URICA defines readiness to change according to stage of change in which the client is motivated to participate in recovery behaviors (i.e., precontemplation, contemplation, action). Table 1 shows the descriptive statistics for demographic and readiness to change variables including the number of subjects, mean, and standard deviation.

Table 1

Descriptive Statistics for Religiosity and Readiness to Change

Measure	N	Mean	Standard Deviation	Minimum	Maximum
Religiosity	772	38.61	11.32	13.00	71.00
Gender	772	1.20	.401	1	2
Race	772	1.13	.332	1	2
SES	772	4.69	1.89	1	9
Readiness	772	10.97	1.58	1.57	14

The correlations of the background variables and religiosity to the criterion variable, readiness to change are detailed in the matrix found in Table 2.

Overall, the correlations were insignificant, with the exception of ethnicity to socioeconomic status (r = .090). This suggests that ethnicity is associated with socioeconomic level ($p < .05$). The religiosity (RBB) and readiness to change (URICA) scores revealed a shared variance of less than one percent ($r^2 = .001$) (see Table 3) with a statistically weak correlation (r =.024). These results suggest that neither a positive or negative relationship between religiosity and readiness to change was detected in this analysis.

Table 2

Correlation Matrix

Variable	Gender	Ethnicity	SES	Religiosity	Readiness
Gender	--	.005	-.014	.031	-.048
Ethnicity	--	--	.090*	.038	-.007
SES	--	--	--	-.015	-.021
Religiosity	--	--	--	--	.024
Readiness	--	--	--	--	--

* Correlation is significant at the 0.05 level (2-tailed).

STEPWISE MULTIPLE REGRESSION ANALYSIS

Stepwise Multiple Regression was conducted to investigate the research question: Beyond background variables of gender, ethnicity, and socioeconomic status, what is the predictive value of religiosity to readiness to change? The stepwise criteria to enter the variables was $\underline{p} < .05$ and to exclude variables was $\underline{p} < .10$ as the three background variables and religiosity were regressed against the criterion variable readiness to change. Religiosity (RBB) scores were entered into the first block for analysis. In the second block, four background variables were entered: age, ethnicity, socioeconomic status, and gender. None of the variables were found to account for any of the variance. The summary of the stepwise regression analysis findings for readiness to change is found in Table 3. These results show no significant findings, thus indicating that no significant predictor variables were identified. As the data in Table 3 indicate, religiosity (RBB) independently accounted for less than 1% of the variance in the criterion variable which not significant at the $p < .01$ level. The $\underline{r} = .024$ indicated no relationship between religiosity and readiness to change.

Table 3

Summary of Regression Analysis for Variables Predicting Readiness to Change

Variable	Unstandardized Coefficients B	Std. Error	Standardized Coeffecients Beta	t	Sig.
Constant	10.836	.206		52.486	.000
RBB total	3.43E-03	.005	.024	.668	.504

Variable	R 2	Std. Error Of the Estimate	R2 Change
Constant			
RBB total	.001	1.57	.001

SUMMARY OF FINDINGS

This chapter presented the results of this study. The following results were explained: (a) descriptive statistics for religiosity, (b) descriptive statistics for readiness to change, (c) correlations among the variables, including background variables, (d) results of the stepwise multiple regression on readiness to change.

Stepwise multiple regression showed no significant predictive relationship between religiosity and readiness to change, where religiosity accounted for less than 1% of the variance in readiness to change. Chapter 5 will address these findings with regard to how and why the study did not detect any differences through this analysis.

CHAPTER 5: DISCUSSION

This exploratory study investigated the relationship of religiosity to readiness to change in addictive behaviors. The database from Project MATCH was used which included participant scores from the aftercare arm of the clinical trial. A total of 772 scores were used from responses to the RBB and URICA. Stepwise multiple regression revealed that there were no significant differences detected across variables regarding the relationship of religiosity to readiness to change. This chapter addresses potential explanations for these findings and implications for training, practice, and research will be presented related to the research question. Finally, suggestions for future research relative to religiosity, readiness to chance and addiction recovery will be offered.

VARIABLES

This study investigated the predictive value of client religiosity to readiness to change. The predictor variable, religiosity, and the criterion variable, readiness to change, will be reviewed here.

Religiosity

Religiosity was measured according to the RBB. In this instrument, religious practices were assessed according to the frequency respondents engaged in the following behaviors: thought about God, prayed, meditated, attended worship services, read/studied scriptures/holy writings, and had direct experiences with God.

Readiness to Change

Readiness to change was measured according to the URICA. The URICA defines readiness to change according to a client's stage of change regarding drinking behavior. The URICA readiness to change items were designed to identify the stage at which the client was motivated to participate in recovery behaviors (i.e., precontemplation, contemplation, action).

LIMITATIONS

Study Design

Measures

The variables for this study were supported in the literature as important to addictions treatment outcome and relevant to current research. However, as in any study, measures of these variables posed certain limitations. Specifically, given that the study results showed no difference, it is important to consider that the RBB was not a comprehensive measure of religiosity. Limitations of the RBB suggest that the definition of religiosity and its measurement may critical in detecting whether religiosity predicts readiness to change and ultimately plays a mediating or moderating role in the causal chain to treatment outcome.

As well, there are some important considerations regarding the scores from the URICA. Although the URICA was developed for research and specifically designed to measure the construct, readiness to change, the measure does not account for smaller increments of change within the stages of change. Measurement (i.e., URICA) sophistication may be important when starting levels of motivation are elevated and research is attempting to detect subtle differences relative to movement through stages of change. In this study, pre-treatment levels of motivation may have been too high to detect any shifts in readiness to change relative to religiosity. This hypothesis, together with the possibility that RBB did not adequately measure religiosity, suggests important limitations regarding these measures. Further limitations regarding the study design and research are explored in the following section.

Homogeneity

Project MATCH Researchers made an effort to account for the problem of homogeneity using multiple sites, geographical locations, and recruiting over a 2 year period. However, demographics show limited diversity in the research sample. The occurrence of homogeneity may account for the fact that this study was unable to detect difference with regard to religiosity and readiness to change.

If the subject sample is not representative of the larger population, results cannot be generalized and, thus are not applicable to other research or clinical settings.

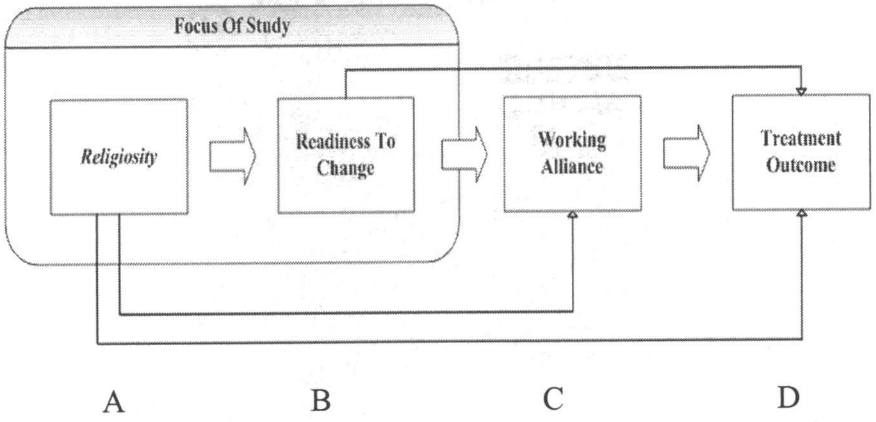
Researcher Influence

Project MATCH researchers discovered that though there were no significant matching effects in the clinical trial, in follow-up assessment the researchers were found to have an effect on treatment outcome. Researcher influence was an unanticipated effect that had not been considered in the study design. Again, this is another factor that may have obscured the relationship of religiosity to readiness to change.

Model

In this dissertation, the study was implemented based on a hypothetical canonical causal model that was guided by theoretical assumptions and the extant research literature. A regression analysis was used to determine a potential antecedent relationship within the hypothetical canonical model. The hypothesis was that a potential relationship between religiosity and readiness to change would inform the canonical model with religiosity being the antecedent variable in the chain analysis. See Figure 2.

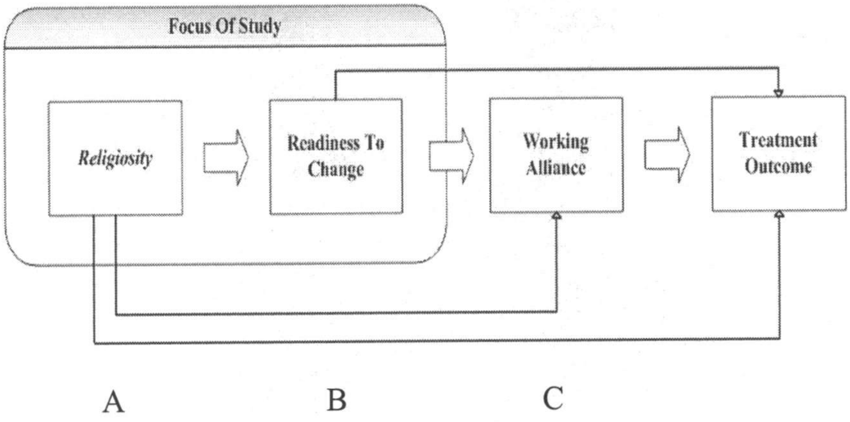
Figure 2: Focus of Study: Antecedent Relationship



According to Baron and Kenny (1986) and Holbeck (1997) in an order to identify a potential mediating variable in a causal model four conditions must be present: (1) A and C must be related in a hypothesized direction, (2) A and B must be related in the hypothesized direction, (3) B must be related to C (in the hypothesized direction) after controlling for A, and, (4) the relationship between A and C must be smaller after controlling for B than it is before controlling for B. In practice, the first three conditions require the relationship between the two variables to be directionally statistically significant at some preordained level of alpha (0.05). Condition 4 is satisfied if the parameter estimate obtained by regressing C on A (controlling for B) is smaller than the parameter estimates obtained by regressing C on A without controlling for B. The development of the hypothetical causal chain above did not meet these criteria but rather suggests the need to address the first and fourth criteria via this and a future study, respectively.

These criteria are important to consider for models in which mediation is hypothesized and is not found just as it is important for models in which mediation is hypothesized and is found. Strict adherence to the four steps ensures an indication of where the proposed causal chain disconnected if the hypothesized mediation cannot be empirically verified. In this study, the value of this four-step procedure was underemphasized though not completely ignored, as the model was based on theory and research. Again, the hypothetical causal chain was used as a guiding model for the regression study with the intention to further inform the development of the causal chain and future causal studies. See figure 3.

Figure 3: Focus of Study: Causal Chain



A comparable alternative approach for testing mediation in a causal interaction is structural equation modeling. Here, the direct A-C effect is initially estimated by omitting B from the model. Then, a full model containing both the direct (A-C) and indirect (A-B-C) linkages is tested. Mediation occurs when (1) the A-C effect in the initial model is directionally significant, (2) the A-B and (3) B-C effects in the second model are directionally significant and, (4) the A-C effect in the second model is less than the A-C effect in the first model. Again, the same qualifications would apply here as limitations, or parameters, of this study. As evident by the conditions set forth for such modeling, this research serves to inform future study designs involving causal analysis and/or structural equation modeling.

Overall, the use of a hypothetical causal chain was useful in guiding this study and not unfounded, particularly regarding the results for the Project MATCH aftercare group (the participants). Specifically, Project MATCH results showed some support for the causal chain in the aftercare arm and TSF relative to working alliance and readiness to change. Religiosity was also shown to have a role in the prediction of working alliance and post drinking behavior. Moreover, aftercare clients showed higher levels of religiosity thus suggesting a potential that religiosity and working alliance in the TSF treatment may have an interaction with overall levels of religiosity. As well, religiosity was shown to predict outcome in the form of posttreatment days abstinent and drinks per drinking day. Therefore, it is evident that religiosity plays a role among the variables known to positively influence treatment outcome (i.e., readiness to change and working alliance). Given these factors, the construction of a causal model that includes religiosity as a mediator or moderator may be important in determining its role in readiness to change, the change process, and treatment, thus informing addictions treatment research.

Causal Modeling and Treatment

It has been argued that the Project MATCH trial had only very motivated clients and that the level of motivation was too high for the entire sample to influence outcomes with the treatments. However, the motivational levels on the URICA reported among outpatients in this trial were comparable to those from a general outpatient treatment program with few exclusion criteria (DiClemente and Hughes, 1990). Moreover, the fact that the baseline levels of motivation continue to predict drinking outcomes well beyond the end of treatment indicates that there was enough variability to affect drinking outcomes. However, none of the treatments interacted with initial levels of motivation sufficiently enough to disrupt the relationship between motivation on entry to treatment and drinking outcomes. The need to better understand how treatments interact with the process of change in order to improve our ability to influence motivation to change is evident here and perhaps suggests another reason why this study failed to show difference relative to religiosity and readiness to change.

In the Project MATCH analyses, most of the causal chains that appeared to be successfully linked occurred in the outpatient arm of the study. Outpatient was a standalone treatment, whereas aftercare followed a more intensive treatment experience. It would be expected that a standalone treatment would be more likely to be amenable to a successful examination of mediators than would a treatment that was only the latter part of the whole treatment experience of the client. However, the causal chains that did occur in the aftercare arm were supportive of the variables relative to the Project MATCH results and suggest that there is valuable information to be gleaned from the aftercare treatment experience. Here may lay another possible explanation for why no differences emerged in this study. Though the aftercare group showed interaction among the variables of interest where the outpatient group did not, it may be that there exists a treatment intensity and/or setting effect not yet identified. Again, perhaps indicating the need to further explore how and why treatment works across modalities and settings.

Ultimately, the Project MATCH data suggest that the interface of treatment and client variables is important in treatment outcome. However, the interface of symptom focus with patient coping style (which may include elements of religiosity) is less clear. Project MATCH researchers suggest that characterization of the treatments by actual observed therapist behaviors will put several matching predictions to a direct empirical test. These observed behaviors could potentially include variables shown to have an interactive relationship to treatment outcome (i.e., working alliance and readiness to change) depending upon therapist approach, training, and competence. Therefore, it is still relevant to consider treatment modality, setting, environment, therapist behaviors, and client attributes important in treatment outcome. Again, the variables that lend themselves to successful treatment outcome are not clear. Project MATCH, the most rigorous, multisite psychotherapy trial to date, was unable to find common variables and definitive causal relationship in matching clients and treatment. However, further analysis of Project MATCH data suggests that there are influencing factors pointing to important implications for training, practice, and future research.

Specific observations from Project MATCH showed that clients appear to be experiencing a common process of change that is being influenced similarly across three different treatments. These results indicate that we need to understand better the larger process of change for drinking behavior in order to be able to better promote movement through the change process. Very different treatments delivered in different doses of intensity did not affect this change process differentially. Motivational Enhancement Therapy did as well as more established and intensive treatments. However, MET did not affect client motivation or movement through the process of change in any way that differed from CBT and TSF hence the need to understand how to influence motivational readiness to change.

In measuring motivation, the rationale for the predicted matching effect was that MET would differential benefit clients with lower pretreatment levels of problem recognition. This Project MATCH hypothesis failed as some early components of the predicted causal chain were confirmed and other later links were not. For example, the more a client had already been taking steps toward change before beginning treatment, the better the outcomes. This observation is important as pre-treatment stages of change and religiosity both predict outcome. Here we see a potential relationship or perhaps mediating or moderating effect that has yet to be detected.

Project MATCH showed motivation to be a good predictor of outcomes (i.e., clients “doing something toward change.”). It also appears that the more client motivation improves during treatment the better the prognosis. Changes in motivation predict later changes in behavior. The unanswered question is how (and why) this occurs. For example, even a single session of motivational interviewing has been found to improve substance abuse treatment substantially (Saunders et al., 1995).

Clinical descriptions of motivational interviewing have emphasized impact on cognitive/affective variables such as problem recognition, ambivalence, distress, and discrepancy. Interventions designed specifically to have an impact on these variables have generally failed to do so differentially. Hence, there is a need to separate prognostic from causal and intervention effects in clinical research. Motivational variables such as self-efficacy, alcohol expectancies, problem recognition, and readiness have shown to predict outcomes. It does not necessarily follow that interventions designed to act upon these variables will thereby improve outcomes. Data from Project MATCH suggests the mediating role of cognitive factors is questionable and that the role of action and coping strategies are more influential. This observation would suggest a treatment that would engage and retain clients in active personal efforts toward change. The causal mechanisms underlying the efficacy of motivational interviewing remain to be explicated.

In the aftercare arm of treatment, client variables were observed to interact with treatment modality included motivational readiness. It was hypothesized in Project MATCH that motivational readiness would interact with CBT and MET because clients with low readiness were expected to respond to MET more than to CBT. However, the interaction that was observed showed that clients with low motivational readiness achieved higher percentage of days abstinent when treated in CBT than in MET. For those with high motivation, treatment assignment made little difference.

Posttreament interactions revealed that the higher the clients alcohol dependence, the more likely they would achieve a higher percentage of days abstinent and fewer drinks per day when treated in TSF than CBT. Conversely, with lower alcohol dependence clients would achieve more PDA and fewer DDD when treated in CBT versus TSF. One causal chain analysis revealed that therapist emphasis on AA was to influence this interaction. As alcohol dependence increased, the superiority of CBT decreased, so that at high levels of dependence, the treatments were not distinguishable in their effectiveness. Emphasis on abstinence did not enhance outcomes for those more dependent. Therefore, the implication is that some other active ingredient associated with TSF was responsible for increasing the PDA of highly dependent clients. This ingredient has yet to be identified. However, in practice it remains important to be knowledgeable and skilled in implementing such modalities as CBT and TSF.

It is of interest to note that in both the within treatment contrast CBT and the posttreatment contrast with TSF, clients with low motivation who were treated with MET had more drinking days. These results are inconsistent with the notion that MET is helpful because it increase the motivation of less motivated clients. Here, when considering motivation of highly dependent and low motivated clients who are motivated by AA as implemented from the TSF a potential that is leveraging readiness to change may be religiosity. Considering the previously stated client variables, religiosity was not identified, though an inherent aspect of TSF and AA.

In the aftercare arm, with regard to treatment structure, structure was reported to be affected by the interaction of treatment modality (MET vs. TSF and CBT) and client typology. This finding indicates that, contrary to best intentions, the delivery of treatment modality was influenced by client characteristics in the aftercare arm. When structure is viewed as a factor affecting drinking outcome, it appears that in some instances it directly affects drinking (PDA in aftercare). In the aftercare arm, AA attendance was affected by treatment modality, client attribute, and the interaction of treatment modality with client attribute. Here it can be seen that treatment setting, modality, and client attribute interact to affect treatment outcome. These factors are important to recognize relative to research, but more importantly to training and practice. The implications for understanding (training) and incorporating (practice) concepts of client attributes (such as religiosity) and changes process facilitated according to setting, modality, and working alliance are significant.

IMPLICATIONS FOR TRAINING AND PRACTICE

Religiosity

There has been limited research on the role of religiosity and religious beliefs in addictions treatment and the behavior change processes of clients in treatment (Connors et al., 2001). Until recent years, mental health professionals have tended to ignore or pathologize the religious and spiritual dimensions of life in theory, research, and practice (Lukoff & Turner, 1992) The result is that there exists insensitivity toward clients who manifest religious and spiritual dimensions in the narratives they recount to their therapists. The 12-step approach to addictions treatment may be the only formal approach that openly uses spirituality as an integral part of treatment though the role of religiosity and spirituality has been reported as important to recovery (Alcoholics Anonymous, 1976).

Although research has yet to definitively identify what factors converge to make addiction treatment work, the aforementioned literature suggests that religiosity is important in the causal chain to treatment outcome. Moreover, results from this study did not reveal any differences in either direction, indicating that we know the variable of religiosity does not have a negative effect according to the present study. Even though we do not know definitively the benefit or opportunity costs, integrating religiosity into a practice can only understanding and administration of an addictions counseling framework that affords integration of religiosity continue to serve the goal of addiction treatment.

Addiction

In light of the implications of the Project MATCH study, this dissertation study suggests that readiness to change does not mediate the influence of religiosity on working alliance and treatment outcome. However, research hints that setting up treatment interventions that leverage readiness to change may not be as potent as using religiosity in facilitating the working alliance. Specifically, if readiness to change mediates religiosity a fitting intervention might be to use religious beliefs to create dissonance in order to facilitate movement from one stage of change to the next (i.e., enhancing motivation). It would be more prudent to design an intervention that would leverage readiness to toward the working alliance and treatment outcome using religiosity factors. For example, aspects of the working alliance may be enhanced based on validation of religious beliefs and practice through the task function of the working alliance. These types of interventions should be intentionally planned and applied according to a comprehensive framework for understanding a given client's addiction and indicated treatment plan.

Addictions Counseling Training Suggestions

A framework for doing any counseling is important, but particularly so with regard to addictions. As we can see from the amount of resources spend on addictions research and treatment, it is paramount that professionals are trained and prepared to conceptualize and treat addictions according to best practice. Given the many uncertainties about treatment modality, approaches, variables, and dynamics, it is a wonder that treatment works at all. However, we can confidently say that treatment does work, albeit not without standards of practice and a structure within which to work. Therefore, it is yet important to consider a framework for addictions counseling, and of particular relevance to this study, including aspects of religiosity and spirituality.

Framework

Within a framework for addictions counseling, it is easier to see the training implications with regard to religiosity and spirituality. Such a framework is important for conceptualizing addictions treatment because substance use occurs on a continuum on which individuals experience different histories, pattern of use, and treatment needs (Stevens & Smith, 2001). Within the context of addiction, various experiences and treatment needs across individuals must therefore also exist with regard to religiosity and spirituality. Derived from a general approach to substance abuse assessment and treatment planning, the following framework is useful for understanding the process of addictions counseling (Stevens & Smith, 2001). See figure 3.

Figure 3: Addiction Counseling Framework

Addiction Counseling Framework

1. Clinical Evaluation
    Screening
    Assessment (including diagnostic interview, instruments, differential diagnosis)
2. Treatment Planning (including type of plan and delineation of the problem)
3. Referral (including menu of options and comprehensive services)
4. Service Coordination
    Consulting (comprehensive treatment)
    Continuing Assessment and Treatment Planning (diagnosis, treatment modality)
5. Counseling
    Individual (indicating process of intervention and working alliance)
    Group (understanding of group dynamics and psychoeducation)
    Family, Couples, and Partners (integrating systems into treatment)
6. Client, Family, and Community Education (understanding of diverse groups)
7. Professional and Ethical Responsibilities (awareness of rights/laws, biases)

Note: adapted from Stevens & Smith, 2001.

This framework permits the counselor to understand substance use on a continuum while providing flexibility for conceptualizing and treating individual areas of need and development. Religiosity should be addressed within this framework as counselor and client can be assured that a comprehensive approach to treatment that responsibly integrates religious and spiritual concerns will be employed within this structure. For example, counselor values and ethical responsibilities converge within this framework to afford room for a client's religious or spiritual beliefs whether or not the counselor adheres to religious beliefs. Kelly (1995), emphasizes the importance of assessing religiosity and spirituality in order to better understand the client's presenting problem and subsequent treatment needs. Moreover, he suggests that counselors and counselor supervisors should be prepared to use responsive skills intentionally with regard to spiritual issues.

Specific Counseling and Supervision Suggestions

Within the framework presented above, supervision should also be considered. Specifically, supervision should include spirituality as a competency to be addressed within the framework of the counseling process. As well, supervisors and counselors alike should be comfortable and competent in six areas. These six competency areas are:

1. Counselors should be aware of their own religiosity and spirituality.

2. Counselors should be aware and competent regarding the role and function of religiosity and spirituality in client's life and feel comfortable dealing with these issues.
3. Counselors should be able to recognize, differentiate, and discern between religiosity and spirituality.
4. Counselors should be able to assess and provide differential diagnosis with regard to spiritual and religious problems and issues.
5. Counselors should be able to recognize the dangers of misdiagnosing a spiritual dimension as psychopathology.
6. Counselors should be knowledgeable of the specific function of the working alliance, clinical assessment, diagnosis, treatment planning and goal setting, treatment implementation, treatment re-evaluation, outcome, and referral relative to areas 1-5.

Competency in these areas will allow counselors the ability to make sound clinical decisions and apply comprehensive treatment modalities with respect to religiosity within addictions treatment. For example, a counselor utilizing the aforementioned framework and integrating these competencies could facilitate motivation to change with accurate knowledge of the client's religious or spiritual value system. Specifically, a counselor who is comfortable addressing issues of spirituality would confidently encourage a client to weigh the spiritual pros and cons of continuing an addictive behavior. The use of this decisional balance could leverage change and prove to be effective in treatment outcome.

Within the framework of addictions treatment it is important to keep in mind that the client's whole person interacts with the spiritual and none of these dimensions should be addressed at the exclusion of the other. The significance of this point lies in the previously outlined six areas of competencies. Specifically, treatment planning and outcome are directly related to assessment and diagnoses of addiction. All influencing aspects of a client's life (including physical and psychological factors) play a role in recovery. Without consideration given to these areas, there is significant potential for misdiagnosis and subsequent misapplied treatment, which could contraindicate recovery and perhaps cause harm to the client. With such high ethical implications directly related to the therapeutic process and relationship, it is incumbent upon counselor educators and supervisors to consider the importance of religiosity and spirituality in addictions counselor training.

As the research has indicated, readiness to change is related to therapeutic alliance, which is a significant predictor of treatment outcome. Therefore, counselor competencies in discussing and addressing a client's religiosity within the context of addictions treatment may bear weight in clients' readiness to change and subsequent recovery behaviors. Addictions counselors and supervisors need to be informed about the current research, standards of best practice, and a workable framework for understanding the process of treatment and religious/spiritual issues for clients in recovery. Because of the limited research in this area, further study is warranted to support the aforementioned training areas.

RESEARCH IMPLICATIONS

Given the many implications for training and practice, three questions relative to this study regarding research, training, and practice are: (1) What model can best detect interactional effects in substance abuse treatment? (2) How and why does change occur and what does this mean about our ability to influence readiness to change? And, (3) How does treatment interact with the process of change (i.e., why does treatment work?)? In order to address these questions this author concurs with the PMRG (2001) on several recommendations for alcohol treatment research that would serve to both inform the literature but practice as well. The recommendations for research are as follows.

Need to Study Treatment Process

Theories about why treatment works need to be operationalized (i.e., religiosity and AA). For example, there is little known about the process of working alliance as a predictor of outcome. As well, the factors that comprise working alliance and readiness to change have yet to be examined closely relative to treatment outcome and religiosity.

Need to Study Treatment Context

The interface of treatment environment and context should be examined in light of the fact that Project MATCH was a multisite trial in which subtle differences were found based on site. These observed differences suggests that generalizability across settings is not feasible. The treatment context most likely influences the previously discussed variables of working alliance, religiosity, and readiness to change. This interactive effect has yet to be determined but is certainly relevant to such research, training, and clinical practice.

Measure Quality of Life as Outcome

Depending upon the underlying theory of the treatment approach, drinking may not be the primary dependent variable. Specifically, quality of life may be a more important mediating variable relative to treatment outcome. Research hints at the importance of quality of life as a motivating factor in changing drinking behavior. This indicates a potential relationship with readiness to change and perhaps religiosity. Again, with consideration to the aforementioned variables, quality of life may be a critical component of the causal chain sequence.

Inclusion of Multiple Sites

Project MATCH found subtle unidentified variables that led to inconsistencies across sites. Number of sites is important in considering study design and the limitations of a single site study regarding generalizability of results. As observed in Project MATCH, a multisite trial showed discrepancies across sites. When using only one site, results can only be applied to that one site. Generalizations would be erroneous as the variables have yet to be determined that confounded and intervened the outcomes found in a multisite trial (i.e., Project MATCH).

Need to Test Clinical Applications

Clinical interventions are currently based on theories of addiction and counseling. Treatment setting, modality, and counselor training and competence all converge to influence clinical application. However, as this dissertation has further established, we have yet to determine what aspects of clinical intervention influence treatment outcome. As we know from various causal chain analyses, religiosity, readiness to change, and working alliance all influence treatment outcome. Therefore, it would be prudent to develop, apply, and test interventions incorporating these variables (e.g., using working alliance to facilitate self-awareness about client religiosity and subsequently helping the client to leverage personal religiosity [e.g., beliefs and practices] against drinking behavior).

CONCLUSION

In conclusion, in light of the research suggestions and the outcome of this study, there are analytical considerations that clearly make the detection of interactive effects more difficult than the detection of main effects. Although interaction effects are frequently found in experimental studies, they are much more difficult to detect in field settings. The reasons for such difficulty may include covariance of the interaction term with its component variables, the use of nonlinear scales, and differential residual variances of interactions once the components main effects in field settings remains an elusive goal in outcome research (PMRG, 2001). Though this study used a linear model, the design was based on a hypothetical canonical model and thus intended to inform the causal chain. Herein lies the problem with using a linear approach to a question alluding to interactive effects.

Project MATCH predictions as to how treatments would be distinctive in ways that would differentially impact clients with specific attributes were clearly inadequate. One conclusion is that we do not know yet how treatments work. In aggregate, core aspects of recovery and treatment are influenced by multiple and complex factors and in turn influenced by drinking outcomes in variable and complex ways. Given the presented characteristics of research and addictions treatment outcome, the implications for training and practice hinge on theory and modest results from clinical outcome studies. Studies such as Project MATCH can be used to inform the design and analysis, as was the case with this study. The variables identified as predictive include working alliance, readiness to change relative to treatment outcome. The good news is that treatment works and the factors that have been identified as influential seem to occur within treatment practices to some extent. However, the need for training and best practice standards is evident with regard to applying processes of change and spirituality across a breadth and depth of understanding and skill within several treatment setting and modalities.

In summary, this dissertation study was based on the question of the predictive value of religiosity on readiness to change. A canonical model was used to guide the research design and analysis with respect to the potential mediating interaction of readiness to change with working alliance and ultimately treatment outcome, thus informing the regression study. Additionally, the addictions literature supported the integration of religiosity in treatment, the Project MATCH causal chain analyses suggested an interaction of religiosity with working alliance and with treatment outcome, and this study revealed no negative relationship between religiosity and readiness to change. Given the theoretical and researched based support of both constructs (i.e., religiosity and readiness to change) as maintaining significant value in addictions treatment and research, the training and clinical applications suggested here warrant serious consideration. Though this study did not detect differences with regard to religiosity and readiness to change, the results serve to inform future research, training, and practice that will hopefully further elucidate the ultimate question: how and why does treatment work?

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APPENDICES

APPENDIX A

The Religious Background and Behaviors Questionnaire Items

1 What of the following best describes you at the present time? (Check one)

Atheist	• I do not believe in God
Agnostic	• I believe we can't really know about God
Unsure	• I don't know what to believe about God
Spiritual	• I believe in God, but I'm not religious
Religious	• I believe in God and practice religion

For the past year, how often have you done the following? (Circle one number for each line)

	Never	Rarely	Once a month	Twice a month	Once a week	Twice a week	Almost daily	More than once a day
a Thought about God	1	2	3	4	5	6	7	8
b. Prayed	1	2	3	4	5	6	7	8
c. Meditated	1	2	3	4	5	6	7	8
d. Attended worship service	1	2	3	4	5	6	7	8
e. Read-studied scriptures, holy writings	1	2	3	4	5	6	7	8
f. Had direct experiences of God	1	2	3	4	5	6	7	8

3 Have you ever in your life

	Never	Yes, in the past but not now	Yes, and I still do
a. Believed in God?	1	2	3
b. Prayed?	1	2	3
c. Meditated?	1	2	3
d. Attended worship services regularly?	1	2	3
e. Read scriptures or holy writings regularly?	1	2	3
f. Had direct experiences of God?	1	2	3

APPENDIX B

University of Rhode Island Change Assessment Scale (URICA)

Each statement below describes how a person might feel when starting therapy or approaching problems in his life. Please indicate the extent to which you tend to agree or disagree with each statement. In each case, make your choice in terms of how you feel right now, not what you have felt in the past or would like to feel. For all the statements that refer to your "problem", [illegible] problems related [illegible]

[illegible]

[illegible] Strongly [illegible]

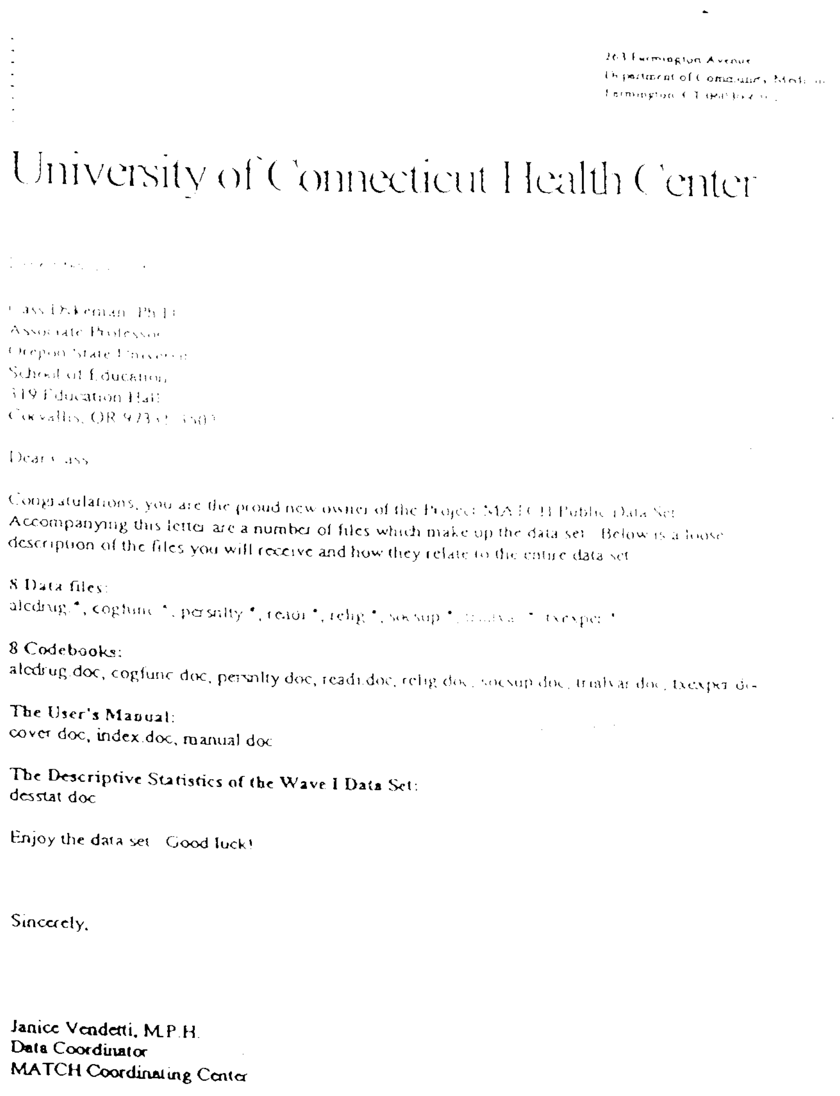
Circle the [illegible] you agree or [illegible]

		STRONGLY DISAGREE	DISAGREE	UNDECIDED	AGREE	STRONGLY AGREE
1	As far as I'm concerned, I don't have any problems that need changing	1	2	3	4	5
2	I think I might be ready for some self-improvement	1	2	3	4	5
3	I am doing something about the problems that had been bothering me	1	2	3	4	5
4	It might be worthwhile to work on my problem	1	2	3	4	5
5	I'm not the problem one. It doesn't make much sense for me to consider changing	1	2	3	4	5
6	It worries me that I might slip back on a problem I have already changed, so I am looking for help	1	2	3	4	5
7	I am finally doing some work on my problem	1	2	3	4	5

	STRONGLY DISAGREE	DISAGREE	UNDECIDED	AGREE	STRONGLY AGREE
8. I've been thinking that I might want to change something about myself	1	2	3	4	5
9. I have been successful in working on my problem, but I'm not sure I can keep up the effort on my own	1	2	3	4	5
10. At times my problem is difficult, but I'm working on it	1	[illegible]	[illegible]	4	[illegible]
11. Trying to change is pretty much a waste of time for me because the problem doesn't have to do with me	1	2	3	4	[illegible]
12. I'm hoping that I will be able to understand myself better	1	2	3	4	5
13. I guess I have faults, but there's nothing that I really need to change	1	2	3	4	5
14. I am really working hard to change	1	2	3	4	5
15. I have a problem, and I really think I should work on it.	1	2	3	4	5
16. I'm not following through with what I had already changed as well as I had hoped, and I want to prevent a relapse of the problem.	1	2	3	4	5
17. Even though I'm not always successful in changing, I am at least working on my problem.	1	2	3	4	5

	STRONGLY DISAGREE	DISAGREE	UNDECIDED	AGREE	STRONGLY AGREE
18. I thought once I had resolved the problem I would be free of it, but sometimes I still find myself struggling with it	1	2	3	4	5
19. I wish I had more ideas on how to solve my problem	1	2		4	
20. [illegible] problem but I would like help				4	
21. Maybe someone or something will be able to help me	1	2		4	
22. I may need a boost right now to help me maintain the changes I've already made	1	2	3	4	5
23. I may be part of the problem, but I don't really think I am	1	2	3	4	5
24. I hope that someone will have some good advice for me.	1	2	3	4	5
25. Anyone can talk about changing, I'm actually doing something about it	1	2	3	4	5
26. All this talk about psychology is boring. Why can't people just forget about their problems?	1	2	3	4	5
27. I'm struggling to prevent myself from having a relapse of my problem.	1	2	3	4	5
28. It is frustrating, but I feel I might be having a recurrence of a problem I thought I had resolved.	1	2	3	4	5

APPENDIX C



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Cass Dykeman, Ph.D.
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Dear Cass

Congratulations, you are the proud new owner of the Project MATCH Public Data Set. Accompanying this letter are a number of files which make up the data set. Below is a loose description of the files you will receive and how they relate to the entire data set.

8 Data files:
alcdrug.*, cogfunc.*, persnlty.*, readi.*, relig.*, socsup.*, trialvar.*, txexper.*

8 Codebooks:
alcdrug.doc, cogfunc.doc, persnlty.doc, readi.doc, relig.doc, socsup.doc, trialvar.doc, txexper.doc

The User's Manual:
cover.doc, index.doc, manual.doc

The Descriptive Statistics of the Wave I Data Set:
desstat.doc

Enjoy the data set. Good luck!

Sincerely,

Janice Vendetti, M.P.H.
Data Coordinator
MATCH Coordinating Center

APPENDIX D

OREGON STATE UNIVERSITY
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REPORT OF REVIEW

TO: Cass Dykeman,
Education

RE: Relationship of Religiosity to Readiness and Change (Student Researcher: Naomi Mandsager)

Protocol No. 1864

The referenced project was reviewed under the guidelines of Oregon State University's Institutional Review Board (IRB). The IRB has approved the application. This approval will expire on 5/15/03. This new request was reviewed at the Exempt from Full Board level. A copy of this information will be provided to the full IRB committee.

- Any proposed change to the approved protocol, informed consent form(s), or testing instrument(s) must be submitted using the MODIFICATION REQUEST FORM. Allow sufficient time for review and approval by the committee before any changes are implemented. Immediate action may be taken where necessary to eliminate apparent hazards to subjects, but this modification to the approved project must be reported immediately to the IRB.
- In the event that a human participant in this study experiences an outcome that is not expected and routine and that results in bodily injury and/or psychological, emotional, or physical harm or stress, it must be reported to the IRB Coordinator within three days of the occurrence using the ADVERSE EVENT FORM.
- If a complaint from a participant is received, you will be contacted for further information.
- Please go to the IRB web site at: http://osu.orst.edu/research/RegulatoryCompliance/HumanSubjects.html to access the MODIFICATION REQUEST FORM and the ADVERSE EVENT FORM as needed.

Before the expiration date noted above, a Status Report will be sent to either close or renew this project. It is imperative that the Status Report is completed and submitted by the due date indicated or the project must be suspended to be compliant with federal policies.

If you have any questions, please contact the IRB Coordinator at IRB@oregonstate.edu or by phone at (541) 737-3437.

Laura K. Lincoln
Laura K. Lincoln
Institutional Review Board Coordinator

Date: 5/16/02

pc: 1864 file